Edit Lister
3.1

EDIT LISTER™

Version 3.0

NTSC

MS-DOS

Edit Lister 3.2

Addendum to the 3.0 Manual

(This addendum and the Edit Lister 3.1 addendum describe changes to Edit Lister since the manual for version 3.0 was printed.)

B-Mode Cleaning - Notes associated with audio-only events will no longer be lost during a B-Mode Clean. All notes are now retained as long as any part of the edit to which they were attached makes it through the cleaning process. If an event is split into several parts, the note will be attached to the first part of the event, and deleted from any subsequent parts.

B-Mode Cleaning - An addition has been made to the Soft Scrub Clean for B-Mode Assembly dialogue. If you select the Find Short Events option, you will now be asked to specify the minimum number of frames allows. For example, if you enter the number 5, the option will find any events shorter than 5 frames. Events of 5 frames or longer will be ignored.

Assemble Edits - Edit Lister also now recognizes and can create assemble mode edits in Edit Master format. The assemble mode is set by turning off all video and audio channels. Turning any channel back on resets Edit Lister to insert mode. Assemble edits will appear in the list with "ASMB" in the edit mode column. Please note that this designation may not (probably will not) be recognized by other editing systems.

ASCII File Save - When saving a file to disk in ASCII form and when transmitting a file to another editing system, you will now be offered the option of including "tagged" events or removing them. Tagged events are the same as disabled events (ones that have been recorded) in Edit Master.

Line Editor - When you enter the line editor to type in a title or notes, Edit Lister will now automatically default to insert mode, rather than overstrike. It will also now show the current mode at the right of the screen. As before, you may toggle between insert and overstrike mode by pressing the "Ins" key.

EDIT LISTER™

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Minus Values - When trimming edit points or entering a minus duration, the minus sign may now be typed anywhere in the entry, instead of just at the beginning. As a result of this change, the minus sign no longer returns a double zero when typed after an entry has been started, as was previously the case.

Serial Port Parameters - The settings of the Edit Out Port are no longer loaded along with an edit list in the .EL3 format. Thus, serial port settings are not changed by the act of loading a list—a factor that has caused confusion in the past. To retain backwards compatibility with older versions of Edit Lister, the settings are saved in .EL3 format lists, but are ignored by Edit Lister 3.2 during list loading.

Soft Scrub - A number of obscure and rarely-encountered bugs have been cleaned up. In particular, notes were sometimes getting lost or scrambled; the bug that caused this has been fixed. Also, an addition to the Join Events function will now combine edits with different modes if the sources and in/out time codes match, even if they have different event numbers, such as in the following example:

```
003 012 A2    C      12:32:39:04 12:32:44:22 01:08:28:06 01:08:33:24

005 012 V     C      12:32:39:04 12:32:44:22 01:08:28:06 01:08:33:24
```

These two events will be combined into the following single event:

```
003 012 A2/V  C      12:32:39:04 12:32:44:22 01:08:28:06 01:08:33:24
```

Edit Lister 3.1

Addendum to the 3.0 Manual

Welcome to Edit Lister 3.1. This new version of Edit Lister will work with 30-frame (NTSC), 25-frame (PAL) or 24-frame (film speed) time code. This Addendum will describe the differences between Edit Lister 3.1 and the original version 3.0 described the the main sections of the manual.

PROGRAM & MANUAL DIFFERENCES

Edit Lister 3.1 offers all of the features of version 3.0 with the exception of the Output Buffer, which has been proven to be unnecessary, and has been eliminated. In addition, version 3.1 incorporates new features that will be available when it is set to use 25-frame PAL time code.

When set for 30-frame NTSC time code, the features and operation are to a great extent the s....? as described in the main manual. When set for 25-frame PAL time code, Edit Lister 3.1 will offer functions relating to PAL colour framing in place of the NTSC drop/non-drop frame functions. In particular, Edit Lister 3.1 provides PAL 4-field and 8-field colour framing correction. The differences in Edit Lister's operation and in the manual are listed below.

Page 1–5 Drop Frame / Non-Drop Frame

This reference applies only when Edit Lister is set to use NTSC time code.

Page 1–7 Change Frame Code Modes

This function is replaced by a Correct Colour Framing function when Edit Lister is set to use PAL time code. This new function is described fully starting on page 8 of this Addendum.

software handshaking (previously changed by editing the Format files, and discussed on pages 1–7 – 1–8, pages 1–52 – 1–54 and pages B–5 – B–6). We have found no editing systems that require hardware handshaking, while changes to the XON/XOFF setting are more often needed.

Page 1–8 Frame Code Mode Defaults

The reference to Frame Code Mode Defaults applies only when Edit Lister is set to use 30-frame NTSC code.

Page 1–9 THE FORMAT FILES

New Format File

An additional Format file has been included, providing support for the GVG/ISC 3.1 format. The original GVG format is now identified as GVG 3.0. The Custom format file now represents our guess as to what a future three-audio-channel Grass Valley format may look like. Please refer to page 1–9 of the Edit Lister 3.0 manual.

Reel Number Length

The second character of the Format files—the number of characters used in the reel number—may be edited as before. It is no longer necessary, however, to also edit the Auxilliary (AX) and Black (BL) designations, as the length of their fields will automatically adjust to match the reel number length.

(The maximum reel number length is five numeric characters plus an alpha character. The largest number available for a reel number, however, is 32,767. A reel number larger than 32,767 received in E-Link or an ASCII disk file will overflow, and will be shown as 0.)

Edit Mode Length

The fourth character in the Format files now sets the length of the edit mode representation, rather than the XON/XOFF setting mentioned on pages 1–7, 1–54 and B–5. The first four Format files (CMX, Convergence and GVG 3.0 and 3.1) use a mode length of four characters. The fifth Format file (our speculation on the GVG 3-channel format) uses a mode length of five characters. Edit Lister 3.1 allows an edit mode length of up to six characters.

Page 1-12 Sample Screen

The sample screen shown reflects a setting for NTSC code. When Edit Lister is set to use PAL code, the frame code mode indications (number 6 in the upper portion of the diagram) are replaced by colour framing indicators, which are described fully on page 8 of this Addendum.

Page 1-3 SYSTEM INSTALLATION

A new additional setting has been added to the System Installation screen, and will appear at the upper right corner. This setting is for the frame rate to be used by Edit Lister. This setting can only be changed when there is no list in memory.

The first time Edit Lister is run, it will automatically go from the title screen to the System Installation screen, and will highlight and activate the frame rate setting. Use the left/right arrow keys to select a frame rate, and then press ENTER. Change any other settings as appropriate, and press ESC to proceed to the main section of Edit Lister. The settings you make will be saved in the ELSYSTEM file, and will be loaded from that point on whenever you run Edit Lister. The System Installation screen will be bypassed on the subsequent times you run Edit Lister, and you will not need to visit the System Installation screen unless you change the configuration of your computer and/or its peripherals.

The diagram of the System Installation screen shows options for setting Frame Code Mode defaults at the lower part of the screen. These are not applicable and are not active when Edit Lister is set to use PAL or 24-frame film code.

Page 1-6 - 1-7 Edit In Port

The automatic disk backup function in E-Link's direct input mode can now be turned off from the System Installation screen. With "Backup = On", edit data received from an editing system will be backed up in a disk file, as described on pages 1-50 and B-4 of the manual. This function may be turned off for use with auto-logging systems that read discontinuities in time code and generate an edit line with each time code change.

Page 1-7 Edit Out Port

The DSR/CTS setting for hardware handshaking referred to in the manual (pages 1-7, 1-54 and B-5) has been replaced by a setting for XON/XOFF

Print Incoming Edit - New Feature

The fifth character of the Format files may be edited to enable a new "Print Incoming Edit" function in E-Link Direct Input mode. If this character is 0 (the default value), then incoming edits are stored in memory and backed up on disk (if the backup feature is enabled). If this character is changed to 1, incoming edits will also be sent out to a printer after they are displayed.

Page 1-12 Keyboard Commands (List)

The "F" command used to toggle frame code modes in NTSC mode will have no effect when Edit Lister is set for PAL code.

Page 1-20 Applying the Constant Registers

The note near the bottom of the page on frame code modes affecting constant numbers pertains only when Edit Lister is set for NTSC code.

Page 1-21 DROP-FRAME/NON-DROP-FRAME SELECTION

This section applies only when Edit Lister is set for NTSC code. The indicators discussed are replaced by colour framing indicators when Edit Lister is set for PAL code, which are described in detail on page 8 of this addendum.

Page 1-36 - 1-37 SAVE THE LIST

Several enhancements have been made to Edit Lister's disk filing routines:

Stripping Notes from ASCII Files

When you save a list as an ASCII file, Edit Lister will now offer the option of stripping out notes from the list. This has been added for two reasons: First, it provides for transfers of such files using simple communications software at an on-line facility where the on-line editing system cannot accept notes. The second purpose is to remove notes added during list tracing with the Edit Tracker list tracing program.

The default to the query "INCLUDE NOTE, OK?" is yes. Press "N" to eliminate notes from the file.

ASCII Input Mode Error Handling

An error check is now made during all ASCII input, which includes E-Link, loading ASCII files from disk, and reading paper tapes.

If Edit Lister receives an edit mode designation it doesn't understand—for instance, a Convergence format V2, when it has been set for CMX format and would thus expect to see A2/V—it will beep, display an error message showing the unknown edit mode it received, and will insert a "dummy" edit mode of "????" into the list. Previous versions would either "hang" in such instances, or would insert spurious data into the list as a result of "losing sync" with the various edit fields.

The Sample Edit List Files

The sample files have been renamed to indicate the television standard under which they were created. Files starting with the letter "N" are NTSC lists, while files starting with the letter "P" are PAL lists.

Edit Lister 3.1 includes the frame rate setting in files saved as Edit Lister ".EL3" files, using a value that had previously been unassigned, but that was included in previous versions' lists. Files saved with version 3.0 will load properly, with the frame rate unchanged. Files saved by version 3.1 will set Edit Lister 3.1 to their frame rate when they are loaded. If version 3.0 is used to load version 3.1 files, the frame rate information will be ignored.

With the introduction of version 3.1, all Edit Lister files are compatible with all versions of Edit Lister. Thus, an .EL3-type list created on the standard (CMX, Convergence, Grass Valley & Sony list format) version can be loaded into the Paltex version, and visa-versa. All Edit Lister 3.X versions are file compatible.

TUTORIAL

The Tutorial section of the manual leads the users through a sample editing session, building an edit list at the keyboard. The time codes used in this section are based on 30-frame NTSC SMPTE code, and will thus be incorrect for PAL.

A PAL version of the sample edit list produced during the Tutorial (and provided as PSAMPLE1.EL3 on the Edit Lister disk) is provided at the end of this Addendum. The correct PAL time code numbers for the Tutorial may be derived from this sample list.

File Name Defaults

When saving a list that you loaded from disk, where Edit Lister offers the option "Save as [FILENAME], OK?", only "Y" or ENTER are now considered affirmative responses. Pressing any other key will result in your being asked for a new file name. In such cases you may abort the process by pressing ENTER without typing a new file name.

Automatic File Backup

When saving a list that you loaded from disk, as discussed above, if you press "Y" or ENTER, Edit Lister will first rename the original copy of the file (the one you loaded) with a backup file name extension. Edit Lister (.EL3) files will be renamed ".EBK", while ASCII files will be renamed ".ABK". It will then save the file under the original file name with the normal extension. This provides an extra degree of protection.

Page 1-51 – 1-52 E-LINK OUTPUT MODES

The Output Buffer function mentioned in the introductory information on E-Link has been eliminated.

Page 1-53 Output Buffer

This section may be ignored. The Output Buffer has been found to be unnecessary, and has been eliminated.

Page 1-55 SOFT SCRUB II

The screen display shown on this page reflects Edit Lister's NTSC mode. When set for PAL code, the "Change Frame Code Modes" option will be replaced by the PAL "Correct Colour Framing" option. When set for 24-frame film code, this section of the Soft Scrub menu will read "(Not Used for 24-frame)".

Page 1-57 Auto Clean A-Mode Operation

The information in the last sentence at the bottom of the page is no longer correct. Soft Scrub now will join dissolves or wipes to following cuts where appropriate.

APPENDIX B —E-LINK

Page B-3

The reference to Convergence drop-frame/non-drop frame codes at the top of the page applies only when Edit Lister is set to use NTSC code.

Page B-5 Direct Output

The information regarding the DSR/CTS hardware handshaking protocols is no longer correct. We have found no editing systems that make use of hardware handshaking. Instead, XON/XOFF protocols are used, as described in the manual. As mentioned earlier, this option is now enabled from the System Installation screen, rather than by editing the Format files, as described in the manual.

Page B-5 – B-6 Output Buffer

The Output Buffer has been eliminated.

Page B-7 E-LINK AND FRAME CODE MODES

This section applies only when Edit Lister is set to use NTSC code.

MAIN DISPLAY COLOUR FRAMING INDICATORS

When Edit Lister is set to use PAL code, it will indicate 8-field colour framing errors with a symbol that will appear to the right of the VTR channel duration. The symbol will indicate the relationship of the VTR channel edit in point to the Record VTR edit in point. The symbols, and their meanings, are as follows:

(No Symbol) = Correct Colour Framing
< = Trimming by –1 frame will correct framing.
= Trimming by +/– 2 frames will correct framing.
> = Trimming by +1 frame will correct framing.

The example screen on the next page illustrates the various symbols:

Page 1-67 CHANGE FRAME CODE MODES

The section applies only when Edit Lister is set for NTSC code. When Edit Lister is set for PAL code, this function is replaced by the CORRECT COLOUR FRAMING function, which is described in detail starting on page 9 of this addendum.

Pages 1-70 – 1-72 NOTES ON DROP FRAME CODE / COLOR FRAMING

These section apply only when Edit Lister is set for NTSC code.

Page 1-75 Edit Lister Files

Several changes and enhancements apply to this section.

The ELDATA and ELHELP files are no longer used by Edit Lister 3.1, resulting in a reduction of disk files and faster performance.

Also, the process of copying files onto the backup disk may have been automated by using a new batch file called COPY-EL.BAT. To use it, once you have installed the main Edit Lister file using the INSTALL command, simply type "COPY-EL X:", where "X" is the letter of the drive containing the disk onto which you are backing up Edit Lister. Don't include the quotes, and do include the colon following the drive letter.

Two additional features have been added to Edit Lister version 3.1:

NEW FEATURES

Auto NumLock

Whenever Edit Lister expects a numeric entry, it will activate the NumLock key, making the cursor/numbers keypad generate numeric entry. When the entry is completed, it will return the NumLock key to its original state. (On some computers with key state indicator lights, the NumLock light may not turn on— the NumLock key will be active nonetheless. On most computers, the NumLock light will turn on.)

When the NumLock key is active, the Del key will act as a "00" (double-zero) key, and the "+" key will act as a colon key.

PAL SAMPLE EDIT LIST

DISK FILE NAME: PSAMPLE1
TITLE: 4651-034 "EDIT LISTER" 1 X :30

Event	Reel	Mode	Tr		Source In	Source Out	Record In	Record Out
001	AX	AR/U	C		00:00:00:00	00:00:00:00	00:59:30:00	00:59:30:00
COLOUR BARS AND TONE								
002	AX	AR/U	C		00:00:00:00	00:00:00:00	00:59:50:00	00:59:50:00
SLATE								
003	099	R	C		01:19:20:22	01:19:50:22	01:00:00:00	01:00:30:00
PRE-EDITED VOICE-OVER								
004	DL	A2/U	C		00:00:00:00	00:00:00:00	01:00:00:00	01:00:00:00
004	001	A2/U	D	020	01:00:24:14	01:00:20:13	01:00:00:00	01:00:03:24
(AUDIO 2 IS MAT. SOUND)								
005	001	A2/U	C		01:08:28:13	01:08:20:13	01:00:03:24	01:00:03:24
005	001B	A2/U	D	015	01:13:08:16	01:13:11:10	01:00:06:10	01:00:06:10
006	001B	A2/U	C		01:13:11:10	01:13:11:10	01:00:06:10	01:00:06:10
006	001	A2/U	D	015	01:34:58:20	01:35:01:10	01:00:09:16	01:00:09:16
007	001	A2/U	C		01:35:01:10	01:35:01:10	01:00:09:16	01:00:09:16
007	002	A2/U	U002 020		02:13:14:22	02:13:17:10	01:00:12:04	01:00:12:04
008	002	A2/U	C		02:35:04:06	02:35:09:00	01:00:12:04	01:00:16:23
SPLIT: VIDEO DELAY- 00:00:-01:10								
009	002	A2	C		02:17:20:12	02:17:24:11	01:00:15:13	01:00:19:12
009	002	U	C		02:17:21:22	02:17:24:11	01:00:16:23	01:00:19:12
010	002	A2/U	C		02:46:12:24	02:46:13:24	01:00:19:12	01:00:19:12
010	002	A2/U	K B		02:46:13:24	02:46:17:11	01:00:20:12	01:00:23:24
010	AX	A2/U	K	015	00:00:00:00	00:00:00:00	01:00:20:12	01:00:20:12
BRING UP TITLE KEY (B & U TITLE CAMERA) - USE ARTWORK PROVIDED BY CLIENT								
(KEY CONTINUES TO LAST EVENT)								
011	002	A2/U	K B		02:51:18:12	02:51:20:21	01:00:23:24	01:00:23:24
011	AX	A2/U	K 0	000	00:00:00:00	00:00:00:00	01:00:23:24	01:00:23:24
(KEY EXTENDED)								
012	002	A2/U	K B	(F)	02:27:59:06	02:28:02:23	01:00:26:08	01:00:26:08
012	AX	A2/U	K 0	020	00:00:00:00	00:00:02:22	01:00:26:08	01:00:29:05
REEL SUMMARY:								
099	001	001B	002					

V/R?

4651-034 "EDIT LISTER" 1 X :30

		IN	OUT	DURATION		POSITION
CUT - A	RECORD 01:00:00:00			30:00		
	A-0001	01:00:00:01	01:00:00:10	:09	<	01:49:33:24
	B-0001B	01:00:00:02	01:00:00:10	:08	•	
	C-0002	01:00:00:03	01:00:00:10	:07	>	
	D-0099	01:00:00:04	01:00:00:10	:06		
	AUX					
	BLACK -----					

SORT REC-IN
EVENT # 010   CO- 00:00:00:00

006	001B	A2/U	C		01:13:11:10	01:13:11:10	01:00:06:10
006	001	A2/U	D	015	01:34:50:20	01:35:01:10	01:00:06:10
007	001	A2/U	C		01:35:01:10	01:35:01:10	01:00:09:16
007	002	A2/U	U002 020		02:13:14:22	02:13:17:10	01:00:09:16
008	002	A2/U	C		02:35:04:06	02:35:09:00	01:00:12:04
SPLIT: VIDEO DELAY- 00:00:-01:10							
009	002	A2	C		02:17:20:12	02:17:24:11	01:00:15:13
009	002	U	C		02:17:21:22	02:17:24:11	01:00:16:23

THE SOFT SCRUB "CORRECT COLOUR FRAMING" FUNCTION

The Soft Scrub extended list management section of Edit Lister will offer a Correct Colour Framing function when Edit Lister is set to use PAL code. This function will perform 4-field or 8-field automatic colour framing correction, either for all tape reels or for a selected reel. Auxiliary and black source time codes are not affected.

When you select this function by using the cursor keys to highlight it and then pressing ENTER, two options will be presented:

CORRECT COLOUR FRAMING: 4-Field   8-Field

Colour framing correction is performed according the relationship of the source tape edit in point to the record tape edit in point.

In 4-field colour framing, the maximum number of frames by which a framing relationship may be off is one frame. If a source tape in point does not have a correct framing relationship to the record in point, it will be trimmed by plus one frame (the edit duration will be maintained, with the result that the edit out point will also be trimmed by plus one frame.)

In 8-field colour framing, the maximum number of frames by which a framing relationship may be off is two frames. If a source tape is one frame past a correct framing relationship, the edit in point (and its corresponding out point) will be

trimmed by minus one frame. If a source tape is two frames past a correct framing relationship, the edit in point (and out point) will be trimmed by plus two frames. If a source tape is three frames past a correct framing relationship (and thus one frame short of a correct relationship), the edit in point (and out point) will be trimmed by plus one frame.

Select the desired correction by highlighting it, and press ENTER.

Edit Lister will then ask:

CORRECT COLOUR FRAMING FOR: All Reels A Selected Reel

If you select "A Selected Reel", Edit Lister will ask for the source reel number for which colour framing will be corrected. Afterwards, or if you selected "All Reels", Edit Lister will ask for a starting event number:

STARTING EVENT #:   (ENTER SELECTS HIGHLIGHTED EVENT)

You may type in a starting event number or a range of events, or use the cursor keys to highlight and select a starting event or a range. To change the frame code mode for a reel or all reels throughout the list, you may type "A" for all, and press ENTER.

Edit Lister will then scan the edits in memory, correcting colour framing, and re-displaying the list when it is finished.

CONTENTS

INTRODUCTION

Welcome to Edit Lister edit list compiler and manager, version 3.0.

This version will run on IBM PC, XT, AT or compatible computers with a minimum of 256K memory installed, and requires DOS 2.0 or higher. It provides a list capacity of 900 events plus text notes. Edit Lister can be used with a single disk drive, although two drives are strongly recommended. Edit Lister can also be backed up on a hard disk drive or a floppy disk. (For instructions on backing up Edit Lister, see page 1–74.)

Paper tape punch/reader and 8-inch floppy disk options are available to allow industry-standard edit decision lists to be generated with this system. In addition, Edit Lister can create lists in the form of standard ASCII text files, which can then be transferred via modem.

This manual is divided into six major sections. The first two—Introduction and Operation—are straightforward sets of operating instructions, designed for experienced computer editors who simply need to learn the keyboard and minor operating differences between Edit Lister and high-level editing systems.

The third and fourth sections are tutorial in nature, designed for those whose experience encompasses mainly control track editing. These sections serve two purposes: in addition to teaching the theory of compiling an edit decision list for on-line auto assembly, they will also—as a by-product—teach the basic principles and operation of high-level systems and list management techniques.

The fifth section consists of several Appendices, and the sixth section is a glossary of editing terminology. A full index is also provided.

We strongly recommend that you read at least the first two sections of this manual before using Edit Lister. While this may violate long tradition and habit, it will lead to greater success much more quickly than trial and error.

PROGRAM OVERVIEW & DESCRIPTION

In its keyboard entry mode, Edit Lister emulates the operation of a high-level editing computer with the RECORD function turned off. This means that the computer does not control VTRs, switchers, etc.

Edit Lister can also be used as an adjunct to off-line editing systems, adding and/or increasing list memory and adding extensive list management and list cleaning capabilities.

Edit Lister is designed to be used as an aid to off-line editing in two main ways: off-line edit decision list compiling, and off-line list management.

OFF-LINE EDIT DECISION LIST COMPILING

Edit Lister can compile edit lists during off-line editing in three different ways: in conjunction with a time code off-line system via the "E-Link" module (see below); by marking in and out edit points by means of the optional time code reader card, either during control track editing or while viewing footage; or by keyboard entry while editing or viewing "window dubs" (copies of master footage with the time code numbers visually inserted into the video).

In the latter mode, Edit Lister takes the place of paper edit log forms, resulting in two major benefits: entering the time code numbers on the computer is faster and neater than using paper forms; and the computer will keep track of record-in times—a task that is very difficult using paper logs. This is a tremendous aid in determining the placement of inserts and cutaways on the edited master tape.

In all cases, Edit Lister can transmit a completed edit decision list directly to an on-line editing system, or, with the use of an accessory paper punch unit or 8-inch floppy disk drive, can generate a paper tape or disk.

E-Link (Edit System Communications)

This module provides an interface to time code editing systems that can send edit information out an RS-232 serial port. These systems include the Convergence ECS-series, the EECO IVES, the JVC VE-92, VE-93 and VE-94, the Paltex Abner, Sony BVE-800 and BVE-900 and others. It allows these systems to use Edit Lister to build an edit decision list in the computer during off-line time code editing. E-Link can also be used to transmit lists directly to an editing system.

GLOSSARY

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Using the Time Code Reader

With the optional time code reader card installed, edit in and out points can be "marked" with a keystroke, bypassing the need to enter time codes manually and thus eliminating the possibility of errors. In this mode, edit lists may be built either during off-line control track editing, or simply while viewing time coded copies of footage.

When used with a control-track system, work tapes are prepared with both window (visible) code and actual time code. Once edit in and out points have been marked "on the fly" (with tape rolling), the window numbers are used to set up the control track edit. After the edit has been made, the in and out points may be verified against the numbers shown by Edit Lister, and the event can then be recorded in memory.

Manual Operation

This mode is used during control-track off-line editing using window dubs of the original footage, and the procedures are fairly simple: the user makes an edit, noting the starting and ending time codes by examining the time code numbers in slow speed search. The starting and ending time codes are entered into the computer, and recorded in the computer's memory.

(It's important to note that the convention in edit lists is that the record and source out points shown are actually the last frame used plus one. The record and source in points are thus the first frame recorded, while the out points are the first frame not recorded. Always add one frame to the last visible time code number at the end of an edit when entering edits into the computer.)

While the actual rough cut tape will contain only cuts, the user may designate cuts, dissolves, wipes or keys while building the list in the computer, with the final printout, paper tape or disk conforming to the selected format.

This mode can also be used to build an edit decision list while simply viewing window dubs and selecting edit in and out points.

OFF-LINE LIST MANAGEMENT

In this mode, Edit Lister loads an existing edit decision list from a previous editing session, and is used to perform list management and/or cleaning off-line.

Edit Lister, when connected via an RS-232 cable to an on-line editing system, or if equipped with an accessory paper punch unit or disk drive, can be used to load a list, perform list management operations, and then generate a revised paper tape or disk, or transmit the list directly back to the on-line system.

FUNCTIONS SUPPORTED BY EDIT LISTER

Edit Lister supports the following functions:

Six source channels:

A-VTR; B-VTR; C-VTR; D-VTR; AUX; BLACK. Reel numbers to 9999 (where permitted by the on-line editing system), including alpha suffix (e.g. 042B).

Five edit types:

Cut; Dissolve; Wipe; Key (including Key/Key Out; Delayed Key; Fade On/Off); Still (Sony BVE-800 format).

Keyboard time code entry:

Set In/Out; Trim In/Out; Set Duration; Trim by Duration; transfer of edit points.

Constant registers (10 Constants):

Constant = Edit Point; Edit Point = Constant; Enter +/- Constant; Trim by +/- Constant; Constant = Duration; Duration = Constant.

Edit modes:

Audio / Video; Video Only; Audio Only; Audio channels 1, 2, 3, or any combination; Split edits, delaying video or audio channels.

Show Title:

A title of up to 73 characters may be entered.

Notes:

Up to 5 notes per event of up to 77 characters each may be entered.

List management functions:

Open re-edit; Insert edit; Close re-edit; Restore last marks; Recall marks from list; Delete event(s); Change record start; List pull-up (ripple); Renumber List; Move event(s).

Drop Frame / Non-Drop Frame:

Edit Lister will properly handle either type of SMPTE code, including mixed frame code modes. (See the notes starting on page 1–70.)

Disk storage of edit lists:

Edit lists are saved to and loaded from standard MS-DOS 5-1/4" disks under a name assigned by the user. This allows multiple edit lists to be stored on the same disk. Files saved in the special Edit Lister format are not compatible with disks used by editing systems.

Edit Lister can also create and read lists stored as ASCII text files. This allows for modem file transfer using standard communications software, and provides the capability of merging lists (see page 1-39). Lists stored in this format can also be loaded by editing systems that use an MS-DOS computer for disk storage.

The optional D-Link hardware/software module can be used to create and read industry standard 8-inch edit decision list disks.

EDIT LISTER SPECIAL FEATURES

Animation

An animation function is provided that can be used to build an edit list for animation. The function provides for user entry of a source interval, number of frames per "exposure", and total number of "exposures", up to the capacity of the system computer. This function is very useful for building lists of single-frame events in videodisc pre-mastering.

Find Record In Time Code

When displaying the list, the user may request the computer to locate an event either by event number or by record in point. The system can also search for the record in time code nearest to the one entered by the user.

Find Note

The list may be searched for a note or a note fragment. For instance, all events with associated notes containing the word "key" anywhere within the note can be located simply by issuing the "Find Notes" command and entering the search word "key".

Auto-Convert Cuts

Cuts in a list may be automatically converted to dissolves or wipes with a minimum number of keystrokes. If the preceding event used the same reel number as the event being converted, the auto-convert function will automatically create a B-roll number.

SOFT SCRUB II

Soft Scrub is a multi-function module that performs automatic list cleaning and offers extended list management capabilities. There are six main sections within Soft Scrub, providing the functions listed below:

Auto Clean

Auto Clean offers the option of cleaning the list for either A-Mode (sequential) or B-Mode (checkerboard) assembly.

Auto Clean will go through a list, looking for overlapping edits, and for edits that have been superseded in the list. It will clean overlaps, and remove edits that have been replaced.

When cleaning for A-Mode assembly, Auto Clean will look for insert edits that "bridge" two or more base edits, and will move these inserts to below the base edits, to their proper position for auto assembly.

When cleaning for B-Mode assembly, Auto Clean will first separate the list into individual video and audio channels, clean them separately, and then re-combine audio and video channels where possible. It offers the options of searching for holes in the list and for events shorter than 10 frames. In both cases, it offers several options for dealing with such occurrences. The final cleaned list may safely be assembled in B Mode.

Auto Clean also offers the options of joining together match-frame (or "tracking") cuts, dissolves, wipes or keys with a preceding cut, and of renumbering the list once it has been cleaned.

Convert Edit Modes

This function can be used to convert a list containing a mixture of types of edits into a list of either just the audio or just the video elements in the list. This is particularly useful when separate audio sweetening will be performed using multi-track equipment.

Change Reel Numbers

This function will scan through a full list or part of a list and replace occurrences of a selected reel number with a new reel number.

Source Time Code Ripple

Tape source time codes may be rippled to allow for the 13 to 14 frame offset in time code reader head position between Sony BVU-800 series recorders and other machines, or for any other reason.

Change Frame Code Modes

This function allows incorrect source tape frame code modes to be corrected either throughout a list or within a range of events. It also allows the record tape frame code mode to be changed. The latter function is very handy when an off-line edit was done with an edit master tape with one type of time code, and the final on-line assembly will be done with an edit master tape with the alternate type of time code.

Re-Sort List

The list in memory may be resorted in four different ways: by record in point; by event number; by source reel (and source in times); or by edit mode.

D-LINK (OPTION)

D-Link is a hardware/software option that allows Edit Lister to both read and write to 8-inch floppy disks. Instructions on its use are provided with the D-Link package.

THE HELP SCREENS

There are two pages of help information available from the main Edit Lister display, which provide a summary of all of the main system commands.

THE KEYBOARD REFERENCE OVERLAYS

A set of keyboard overlays is provided to identify the functions of the upper row of number keys and the function keys. These overlays may be attached to the keyboard using glue or double-stick tape (the latter is recommended).

The number keys strip should be attached in the space directly above the upper row of number keys, aligning the "INSERT EDIT" area above the number "5" key. Two function key overlays are provided. One is for keyboards with vertically oriented function keys, such as the original IBM PC keyboard, while the other is for use with keyboards with the function keys oriented horizontally, such as the enhanced XT and AT keyboards. The horizontal strip should be cut as necessary to align with the groupings of function keys on the particular keyboard design.

GENERAL INFORMATION

HIGHLIGHTED EVENT

When the list in memory is displayed on the screen, one event will be highlighted, indicating that it is the current event within the list. The highlighted event is the one most recently entered into the list, scrolled to, acted upon, or—after loading a list from disk—the first event.

EVENT SELECTION

The highlighting of an event is used during event selection with the cursor keys. With any function that asks you to select an event, a starting event or a range of events, the following prompt will appear (using the Re-Edit function as an example):

```
RE-EDIT EVENT #:       (ENTER SELECTS HIGHLIGHTED EVENT)
```

You may either type in the number of your response, or you may use the UP ARROW (or "[") or DOWN ARROW (or"]") keys to highlight an event, and then press ENTER to select it. Press ESC to cancel the selection process.

Single Event

Some functions, such as Open Re-Edit and Recall Marks, ask you to select a single event. When you either type in the number of the desired event and

press ENTER, or use the cursor keys and ENTER to select it, the selection dialogue ends and the function proceeds.

Range of Events

Some functions, such as Deleting or Moving events, allow you to designate either a single event or a range of events.

To select a single event, type a single number (eg. "1" or "42") and press ENTER, or use the cursor keys to highlight an event and then select it by pressing the ENTER key.

You may select a range of events either by typing in two numbers separated by a comma (eg. "1,42") and pressing ENTER, or by using the cursor keys to select a starting event and then use the UP ARROW or DOWN ARROW keys to select a range of events. Press ENTER to complete the selection of the range.

Starting Event

Some functions, such as Printing and Renumbering the list, allow you to designate a starting event number, with the range to continue either through aspecified event or through the end of the list.

If you type a single number (eg. "1" or "42") and press ENTER, or use the cursor keys to select an event and then press ENTER twice, the system will use that number as the starting event of a range, and the last event as the end of the range.

You may select a range of events either by typing in two numbers separated by a comma (eg. "1,42") and pressing ENTER, or by using the cursor keys to select a starting event and then use the UP ARROW or DOWN ARROW keys to select a range of events. Press ENTER to complete the selection of the range.

Notes on Selecting Ranges

If the range of events you wish to select is small, the cursor keys method is both handy and possibly somewhat safer, since you see the range of events upon which you are about to perform an action.

If the range of events you wish to select is large, however, the use of the cursor keys becomes cumbersome. In such cases, you may find it easier to type in the starting and ending event numbers.

> Keep in mind when doing so that the sort mode may affect ranges of events. For instance, with the list sorted by Record In points, you might find that video insert events 78 through 92 fell in between audio/video events 4 and 5. If you were then to delete a range by entering "4,5" with the number keys, all events from 4 through 5 (including those inserts numbered 78 – 92) would also be deleted.

TEXT EDITOR

All text entry (show title, notes and disk file names) is performed via Edit Lister's text line editor, which operates much like the editors found in many word processors.

The editor works in either insert mode or overstrike mode, selected with the INS key on the numeric keypad. The default mode is overstrike. To enter or leave the insert mode, press INS. In insert mode, the cursor will grow larger.

In overstrike mode, any character at the cursor position will be replaced by a new character you type. In insert mode, all characters at and to the right of the cursor will be pushed to the right to make room for new characters, up to the limit of the field being entered (73 characters for the title, 77 characters for notes, and 8 characters for disk file names).

The backspace key deletes the character to the left of the cursor. The DEL key deletes the character at the cursor position.

The HOME key will jump the cursor to the start of the line, while the END key will jump the cursor to the end of the line.

The RIGHT ARROW and LEFT ARROW keys on the numeric keypad move the cursor left and right within the line.

To complete entering or editing a text line, simply press ENTER. The cursor may be anywhere on the line when you do this.

To erase the line and leave the text editor, press CTRL-END.

ISSUING DOS COMMANDS

You may issue DOS commands from within Edit Lister without affecting the list in memory by pressing ALT-D from the main display. This is most useful when you need to format a new file disk (doing so will require that you load

your DOS disk containing the FORMAT.COM file, or that you have already transferred FORMAT.COM onto the Edit Lister system master disk).

Using the ALT-D command will cause Edit Lister to suspend operations, load a copy of the command processor, and execute any DOS commands you issue. This function requires that at least 17K of memory be available.

USING MEMORY-RESIDENT SOFTWARE

In general, Edit Lister will work very well with most memory-resident utilities such as keyboard enhancers and desk accessories. The most important require-ment is that your computer be equipped with sufficient memory. Edit Lister actually uses just under 200K of memory. (The RAM disk utility uses more memory; please see page 1–1.)

Some resident programs—keyboard enhancers in particular—may interfere with the operation of E-Link's input functions, depending on the computer's clock speed and the baud rate set for communications with the editing system. For instance, on a standard IBM PC running at 4.77 MHz, the use of a keyboard enhancer may cause problems in the form of lost characters when receiving edit data at 9600 baud. Going to a slower baud rate may solve the problem; temporarily removing the keyboard enhancer will also solve the problem.

On computers with faster clock speeds, such as the newer 7 – 8 MHz "turbo" PC XT clones or the PC AT and its clones, the combination of a keyboard enhancer and high communications speeds should present no problems.

For more information, please see the notes in Appendix B on page B-7.

HOW TO USE THIS MANUAL

If you are new to time code editing, having experience mainly on control track systems, then we would recommend that you read Section 2—"TIME CODE EDITING THEORY", and then go through the sample edit session contained in Section 3—"TUTORIAL". This will give you both an overview of com-puter editing and the basic experience necessary to then get the most out of the operating instructions in section one.

If you are experienced with high-level systems, then you'll probably want to read the main operating instructions that comprise Section 1 of this manual. The main things you need to know are the operating differences in key

commands, and the few functional differences between Edit Lister and high-level editing systems.

A NOTE OF THANKS

Many people and companies around the country participated in the "beta" testing phase of Edit Lister 3.0. Our thanks go to them, and to several of the manufacturers of editing systems for their technical assistance in getting Edit Lister to work with their systems.

We would also like to thank the many users of Edit Lister 2.0 for their suggestions, comments and support.

```
❷              ❶ 4651-034  "EDIT LISTER"  1 X :30
V/A2              ─── IN ───────OUT───── DURATION ─────── POSITION───
               RECORD  01:00:19:12 01:00:19:12           (N)
                                   ❹          ❺30:00  ❻          ❼
   ❸           A-0001  01:49:11:22 01:49:14:06           2:14  (N) 01:49:33:24
CUT - A        B-0001B 02:17:24:06 02:17:24:06                 (N)
               C-0002                                          (N)
               D-0099                                          (N)
               AUX
   ❽           BLACK                                     CO=❿00:00:00:00
SORT REC-IN
EVENT # 010
       ❾
            WIPE FROM: B  TO: A
            DURATION: 30  WIPE CODE: 17

006 001B A2/V  C        01:13:11:10 01:13:11:10 01:00:06:18 01:00:06:18
006 001  A2/V  D    015 01:34:58:20 01:35:01:18 01:00:06:18 01:00:09:16
007 001  A2/V  C        01:35:01:18 01:35:01:18 01:00:09:16 01:00:09:16
007 002  A2/V  W002 020 02:13:14:28 02:13:17:26 01:00:09:16 01:00:12:14
008 002  A2/V  C        02:35:04:06 02:35:09:00 01:00:12:04 01:00:16:28
SPLIT: VIDEO DELAY= 00:00:01:10
009 002  A2   C         02:17:20:12 02:17:24:06 01:00:15:18 01:00:19:12
009 002  V    C         02:17:21:22 02:17:24:06 01:00:16:28 01:00:19:12
❶     ❷    ❸   ❹              ❺                      ❻
```

Active (Current) Edit Area (top):
1 – Show Title
2 – Edit Mode
3 – Edit Type
4 – Current Edit Points & Durations
5 – Program Duration
6 – Frame Code Modes
7 – Time Codes (w/Reader)
8 – Sort Mode
9 – Current/Re-Edit Event #
10 – Constant Register # 0

Work Area (center – showing wipe dialogue):

List/Help Area (bottom):
1 – Event Number
2 – Reel # / Source
3 – Edit Mode
4 – Edit Type
5 – Source In / Out Times
6 – Record In / Out Times

OPERATION

GETTING STARTED

(For instructions on installing Edit Lister on a hard disk or backup floppy disk, please see page 1-74.)

When you first receive Edit Lister, the first step is to install the operating system on the System Master disk. To do so, place your DOS disk (that came with the computer) in the A drive, and the Edit Lister System Master disk in the B drive, and turn the computer on, or, if it's already on, press CTRL / ALT / DEL. The operating system will be loaded.

When the drive has stopped, type "SYS B:" (without the quotes), and press ENTER. The drives will spin for a few seconds.

When the drives have stopped, type "COPY COMMAND.COM B:", and press ENTER. The Edit Lister System Master disk is now self-booting.

Remove both the DOS and Edit Lister disks, place the Edit Lister disk in drive A, and type "LISTER". This will load and run the main Edit Lister program.

The A drive will spin while the program is loaded. The first time you run Edit Lister, the installation screen will be displayed. From then on, when you run Edit Lister the main Edit Lister display will appear.

RAM DISK UTILITY

If your computer is equipped with 640K memory, you may use Edit Lister's RAM disk utility to transfer all of the necessary files into memory. This will result in an appreciable increase in Edit Lister's operating speed.

To set up a RAM disk, first make the switch settings inside your computer to add an extra drive (set for one more drive than the actual number of floppy drives installed—see your computer's manual for information).

The creation of the RAM disk and installation of Edit Lister's files in it has been automated by means of two .BAT files provided on the master disk. One

installs the RAM disk as drive C:, while the other installs the RAM disk as drive D:. These are called RAMDISKC.BAT and RAMDISKD.BAT, respectively.

To create a RAM disk and install the necessary files, simply type "RAMDISKC" (or "RAMDISKD"), and the RAM disk will be created, the files transferred, and Edit Lister will be run automatically.

The RAM disk utility leaves approximately 80K of memory available. The use of memory-resident programs (such as keyboard enhancers, etc.) requiring more than this amount of memory will thus cause problems. In such cases, Edit Lister's title screen will appear, followed by an error message. If this happens, press "S" to stop the program, remove the resident program, and start over.

Memory-resident programs that take up less than 80K may be loaded automatically by editing the RAM disk .BAT file to load the resident program after the RAM disk has been created.

Important Note: If you run Edit Lister from the RAM disk, you should save lists on a physical floppy or hard disk, rather than in the RAM disk. A list that exists only in memory will go away forever in the event of a power failure or other catastrophe. Make sure that you set the File Disk Drive to an actual physical disk drive (see "System Installation" on page 1–3).

SETTING THE SCREEN DISPLAY

Edit Lister 3.0 supports both the Monochrome Display Adapter (MDA) and the Color/Graphics Adapter (CGA). When Edit Lister is run, it checks the current video mode setting stored in the computer's low memory and sets itself accordingly. Thus, a "MODE CO80" or "MODE BW80" command issued from DOS before running Edit Lister will be recognized.

Some non-IBM computers (especially portables with LCD displays) can "fool" Edit Lister with regard to the display hardware. The DISPLAY.COM utility program has been provided to deal with such cases.

From DOS, type "DISPLAY", and you'll be provided with a screen of instructions. Set the "Mono Board/Color Board" and "Color On/Off" modes as appropriate for your computer (some experimentation may help you find the best combination of modes).

The settings made with the DISPLAY.COM program over-ride the DOS

command settings, and become a permanent part of the ELSYSTEM file Edit Lister uses to store various settings. DISPLAY.COM needs only be run once unless you change to a different computer.

SYSTEM INSTALLATION

The first time Edit Lister is booted, it will proceed directly to the System Installation section. (After the first time Edit Lister is booted, the System Installation section may be called up from within Edit Lister by pressing CTRL-I (holding down the CTRL key while pressing "I"). The TAB key, which is equivalent to CTRL-I, may also be used.)

The System Installation section tells Edit Lister how your particular combination of hardware is configured, and allows you to define default settings for such things as list formats, frame code modes, etc.

The System Installation screen is shown below:

```
┌─────────────────────────────────────────────────────────────────────┐
│              EDIT LISTER 3.0 SYSTEM SETTINGS                          │
├───────────────────────────────┬─────────────────────────────────────┤
│   File Disk Drive = A:         │   Time Code Reader Installed = No    │
├───────────────────────────────┴─────────────────────────────────────┤
│   Printer Port = LPT1              Lines Per Page = 58                │
│   Printer Codes = None                                               │
├─────────────────────────────────────────────────────────────────────┤
│   Edit.In Port = COM1       List Format = CMX                        │
│   Baud = 1200     Parity = Even     Stop Bits = One   Word Length = Seven │
├─────────────────────────────────────────────────────────────────────┤
│   Edit Out Port = COM1      List Format = CMX              DSR/CTS = Off  │
│   Baud = 1200     Parity = Even     Stop Bits = One   Word Length = Seven │
├─────────────────────────────────────────────────────────────────────┤
│   Paper Tape Port = COM1    List Format = CMX                        │
│   Baud = 1200     Parity = None     Stop Bits = One   Word Length = Eight │
├─────────────────────────────────────────────────────────────────────┤
│   FCM Defaults:    Record = Non-Drop Frame      Source = Non-Drop Frame │
├─────────────────────────────────────────────────────────────────────┤
│      SELECT ITEM WITH CURSOR KEYS, PRESS ENTER TO CHANGE, ESC TO QUIT │
└─────────────────────────────────────────────────────────────────────┘
```

To change settings, use the cursor keys (with the Num Lock key function off) to highlight the setting to be changed, and press ENTER. For those settings that toggle on and off (such as Edit Out Port DSR/CTS or the Record or Source default frame code modes), the setting will change. For those settings that offer a variety of options (such as list formats, baud rates, etc.), a list of options will be displayed. Use the cursor keys to select the desired option, and then press ENTER.

File Disk Drive Assignment

To change the Files disk drive, press ENTER with the File Disk Drive section highlighted. The available drives will be displayed in the lower portion of the screen, and the desired drive may be selected with the right and left cursor keys. When you've selected a drive, press ENTER to complete the selection.

The recommended system configuration includes two disk drives. When this is the case, the System Master disk should always stay in the A: drive, while the Files disks stay in the B: drive.

The ability to assign the A: drive as the file disk drive is provided mainly to allow portable computers with a single built-in drive to be carried to an on-line facility, where a list can be loaded from disk and then "dumped" into the on-line editing system.

If you have installed Edit Lister on a hard disk, and you wish to store edit lists on the hard disk as well, both the Edit Lister files and the edit lists themselves should be stored in the same directory.

Time Code Reader Installation

(Instructions for physical installation of the optional time code reader card are provided with the card. Please refer to them for hardware installation procedures.)

To perform software installation of the time code reader card, use the cursor keys to highlight the Time Code Reader Installed section, and press ENTER. The eight available ports will be displayed in the lower portion of the screen. The four lower port numbers are in the 3200 Hex range (board jumpers aligned horizontally), while the four upper port numbers are in the 5200 Hex range (board jumpers aligned vertically). The board is shipped set for the 3200H range of ports, so one of the ports in the range 1 – 4 would normally be used.

The choice of ports is provided to reduce any chance of conflict with other hardware installed in your computer. The best way to determine which port you should use is by trial and error. Start with port number 1, and if time code is not being read reliably, change to port 2, etc.

To un-install the time code reader card, simply select Time Code Reader Installed again, and press ENTER.

(The main Edit Lister program checks to see whether software installation of the reader has been performed, and automatically enables or disables the time code read function accordingly. With the reader installed, the time code read function can be enabled or disabled by pressing CTRL-R.)

Printer Port

If a single parallel printer is connected to the system, the Printer Port should be set for LPT1, which is Edit Lister's default setting. If you are using a serial printer, use the cursor keys to highlight the Printer Port section, press ENTER, and select the serial port in the lower portion of the screen. Serial port parameters will then be displayed in the Printer Port area of the screen (see below).

Lines Per Page

The Lines Per Page setting is useful for formatting printed edit lists for your particular printer. You should try the default setting of 58 lines per page first, and then adjust as necessary according to your trial printout.

To change the setting, use the cursor keys to highlight the Lines Per Page section, and press ENTER. Type in the desired lines per page, and press ENTER.

Printer Codes

This function allows you to define printer codes that will be sent to your printer at the start of each print operation. These codes are used to set such things as type pitch, font, etc., and will be found listed in your printer's manual.

Up to 10 printer codes may be entered, and these codes may include all alphanumeric characters, the ESC character, and any control character except CTRL-M (which is the same as a carriage return).

To enter printer codes, use the cursor keys to highlight the Printer Code section, and type the appropriate code directly at the keyboard. Control keys, including the Escape key, will be displayed enclosed in angle brackets (<D>, <ESC>, etc.). When the desired codes have been entered, press ENTER.

Printer codes may be deleted by using the backspace key.

Serial Printer Port Parameters

If you are using a serial printer, the port parameters may be selected by using the cursor keys to highlight the setting to be changed (Baud rate, Parity, Stop Bits and/or Word Length), and pressing ENTER. Select the new setting in the lower portion of the screen, and press ENTER to complete the setting.

SERIAL COMMUNICATIONS

All communication with editing systems is performed via serial ports installed in the computer. This requires that the computer be equipped with at least one serial port with operating characteristics that match those of the IBM Asynchronous Communications Card.

Edit Lister provides the capability of establishing two different sets of editing system characteristics (incoming and outgoing), which may be used to set two different serial ports, or to set a single serial port to perform different functions.

The third main external serial device with which Edit Lister is designed to communicate is a paper tape punch/reader.

Edit In Port

The Edit System In port is used for the E-Link module's Direct Input and Input Buffer functions.

If a single serial card is installed, then the port assignment for both the Edit In Port and the Edit Out Port will be the same: COM1. If your computer is equipped with two serial cards, then you may wish to assign one port to the Edit In Port and the other to the Edit Out Port.

To change the port assignment, use the cursor keys to highlight the Edit In Port section, and press ENTER. Select the correct port in the lower portion of the screen and press ENTER to complete the selection.

Several different list formats are available. At the time of the initial release of Edit Lister 3.0, these included CMX, Convergence, Grass Valley/ISC and a "Custom" format (that can be user-defined—see "The Format Files" on page 1-9). To select a format, use the cursor keys to highlight the List Format section of the Edit In Port area, and press ENTER.

To change the Baud rate, Parity, Stop Bits or Word Length, use the cursor keys to highlight the setting to be changed, and press ENTER. Select the new setting in the lower portion of the screen, and press ENTER.

In general, most systems use 7 or 8 data bits, 1 stop bit, and even or no parity (see further notes in Appendix B). Baud rates vary, with many systems offering a range of from 110 to 9600 baud. It's usually desirable to use the fastest baud rate available with your editing system, simply because it saves time.

Edit Out Port

The Edit System Out port is used for the E-Link module's Direct Output and Output Buffer functions.

Port selection, list format selection and serial parameter settings are performed in the same manner as for the Edit In Port, as described directly above, with the exception of the addition of the DSR/CTS hardware handshake setting.

The DSR/CTS setting determines whether Edit Lister waits for the Data Set Ready and Clear To Send lines to go high after sending a Request To Send (RTS) signal to an editing system.

With DSR/CTS turned on, Edit Lister will wait for these lines to go high before transmitting data. If the target editing system doesn't raise these lines to acknowledge (or if these lines are not wired on the cable), then Edit Lister will wait until sometime after the next Ice Age before sending, and the only escape will be to re-boot the computer.

With DSR/CTS turned off, Edit Lister will ignore these lines, and will transmit data even if there's nothing connected to the serial port.

Whether to use the DSR/CTS signals is best determined by trial and error. If you turn DSR/CTS on, try to send to an editing system (after first saving your list to disk), and Edit Lister "hangs", then you should re-boot and turn DSR/CTS off and try again. If DSR/CTS are off and your editing system reports errors or receives partial lines, then it may be trying to stop Edit Lister, and DSR/CTS should be turned on.

(In all cases, Edit Lister can also support software handshaking when sending to an editing system. With software handshaking enabled, Edit Lister will check for XOFF (CTRL-Q, Decimal 17) and XON (CTRL-S, Decimal 19) characters coming from the editing system. Software handshaking is enabled

by a character contained in the outgoing edit Format file. See the information under "The Format Files" on page 1–9 for information.)

Note: The Edit Out Format also defines the Edit Lister screen display and printed list formats.

Paper Tape Port

This port is intended to be used for the connection of a paper tape punch/ reader, although it is also possible to transmit directly to some on-line systems via this port.

The procedures for setting the port and characteristics of the Paper Tape port are the same as for the edit system ports.

Frame Code Mode Defaults

You may establish default frame code modes for both source and record tapes. These settings will be assumed unless you change a setting at the keyboard, or unless an incoming editing system signals a change. This function is provided to allow for those editing systems that do not send frame code mode infor- mation.

To change the source or record default settings, use the cursor keys to high- light the setting to be changed, and press ENTER. The setting will switch to the alternate setting.

Leaving the Installation Section

When you have finished assigning peripherals and settings, press ESC. If you have not established a RAM disk, the settings you have established will be saved in the ELSYSTEM file on the system master disk. From then on, the system will load these settings from disk each time Edit Lister is booted.

If you have established a RAM disk, Edit Lister will ask if you wish to save the new settings on the boot disk (the system master disk). If you select "Yes", the settings will be saved on the boot disk, and will be used the next time Edit Lister is booted. If you select "No", the settings will be saved only in the RAM disk copy of the ELSYSTEM file, and will not be used the next time Edit Lister is booted.

THE FORMAT FILES

The format files are ASCII text files that define information about the list format. The first three—FORMAT1, FORMAT2 and FORMAT3—define the CMX (Revision 217), Convergence and Grass Valley/ISC (Version 3.0 or earlier) formats, respectively. The fourth file—FORMAT4—is a copy of the CMX file with XON protocols disabled (FORMAT1 has XON enabled), available for editing by the user. It corresponds to the "Custom" format available from the installation section.

The format files may be edited using the EDLIN.COM program or any word processor that can edit ASCII text files. (The files may be examined by using the DOS "TYPE" command—e.g., "TYPE FORMAT1".)

The first five characters in the format files are numerals. In order they are: Event Length (standard is 3); Reel Length (2 to 4); Wipe Code Length (3 or 4); XON/XOFF software handshaking protocols (0 = Off, 1 = On), and an unassigned character—0—reserved for future use.

The next fifteen items are the edit modes. Edit Lister 3.0 supports three audio channels plus video, with the modes numbered in the following order:

1 – A1 Only	6 – A2, A3	11 – V, A1, A2
2 – A2 Only	7 – A1, A2, A3	12 – V, A3
3 – A1, A2	8 – Video Only	13 – V, A1, A3
4 – A3 Only	9 – V, A1	14 – V, A2, A3
5 – A1, A3	10 – V, A2	15 – V, A1, A2, A3

The final two items define how the auxiliary and black channels are shown.

Some of the items listed above may be enclosed in quotes in the format file. Where this is the case, the quotes are used to define the length of the data field in question, and both the length of the data field and the quotes themselves must be retained if the file is edited.

Note: There is a possibility that additional format files will be added to Edit Lister in releases subsequent to the printing of this manual. Should you find more than four format files on your Edit Lister disk, the System Installation screen will identify them. In all cases, the last format file (the one with the highest number) will correspond to the "Custom" file.

Also: Should you need to edit the FORMAT4 file to accommodate a format not already supported by Edit Lister, we recommend making a backup copy of the FORMAT4 file before proceeding with your changes.

EDIT LISTER MAIN SECTION

When Edit Lister is run, the title screen will appear first, and a pause of roughly three seconds will occur. During this pause, Edit Lister is testing the clock speed of the computer in order to derive a time constant. This time constant is used during time-outs during various operations such as the E-Link input routines. (The time constant may be seen by pressing ALT-T from the main display, and will affect the operation of E-Link with memory-resident programs. See page B-## for information.)

After the time constant has been established (or after the installation has been performed during the first booting of Edit Lister), the main display will appear, and Edit Lister will ask for several items of information pertaining to the session that will follow.

Title

The system will first ask for a show title. You may enter a title of up to 73 characters.

All text entry in Edit Lister 3.0 makes use of a word processor-style line editor. The editor is described on page I–10.

Press ENTER to complete entering the show title.

Reel Assignments

There are, of course, no actual VTRs being loaded with tape. What we're doing here is assigning reel numbers to "imaginary VTRs". This allows the user to designate effects transitions.

The system will ask, insequence, for reel numbers for the A, B, C and D "VTRs". You may enter any number up to 9999 (editing system permitting), plus any alphabetic suffix (e.g. 001, 001B, 463, 463V).

Be aware that not all on-line systems will allow reel numbers greater than 253, and some will not allow an alpha suffix, or a suffix other than a "B", indicating a B-roll.

Sort Mode

The system will then ask whether events should be sorted by their record in points. The default answer is YES. If you press "N" for NO, the system will ask if the events should be sorted by event number. The default answer is YES. If you press "N" for NO, the system will ask if the sort function should be turned off. The default answer is YES. If you press "N" for NO, the system will again offer to sort by record in point, and the cycle will repeat until you accept a sort mode by pressing ENTER.

Selecting the "SORT FUNCTION IS OFF" mode causes each new event to be added to the bottom of the list. In most cases, this will give the same results as sorting by event number.

The sort mode is active during keyboard entry, E-Link reception, reading paper tape or loading ASCII format disk files.

Program Start

Edit Lister will next ask for a time code to represent the starting point of the program. This number will be used to determine the program duration shown between the record and A-VTR durations in the display.

After this sequence is completed, Edit Lister will be running in "idle", ready to accept commands.

> Note—You may skip over the above questions by pressing ESC before the title screen is cleared and the main display appears. The system will not show a title, will assign reel numbers of 0000 to all VTRs, will default to sort by record in, and will use 00:00:00:00 as the show start. You might do this if you were going to load an edit list from disk or paper tape, or go directly into E-Link to receive edits or a full list from an editing system.

KEYBOARD FUNCTIONS

The basic operation of the program emulates that of high-level editing systems, as has been mentioned. The major difference the editor will note is the use of mnemonics for keyboard commands, in place of the dedicated keys found on high-level editing console keyboards.

As possible, the commonly-used commands have been assigned to a letter key selected to remind you of their function.

CHANNEL SELECTION:
R – Select R VTR
A – Select A VTR
B – Select B VTR
C – Select C VTR
D – Select D VTR
X – Select AUX
L – Select BLACK

EDIT TYPES:
F5 – Cut
F7 – Dissolve
F8 – Wipe
F6 – Key
ALT-S – Still (Sony 800)

EDIT POINT ENTRY:
I or F1 – Set In
O or F2 – Set Out
F3 – Trim In
F4 – Trim Out
T – Trim (In/Out)
CTRL-D – Duration
N – Mark In
M – Mark Out

EDIT MODE SELECTION:
0 – Video On/Off
– – Audio 1 On/Off
= – Audio 2 On/Off
+ – Audio 3 On/Off
S – Split Audio/Video

DISPLAY COMMANDS:
HOME – Top of List
END – Bottom of List
↑ – Up One Event *
↓ – Down One Event *
PG UP – Up One Screen *
PG DN – Down One Screen *
CTRL-F – Full Screen On/Off
8 – Display From Ev.

OTHER COMMANDS:
CTRL-Q – Record
CTRL-C – Constants
CTRL-A – Animate
CTRL-E – E-Link
CTRL-I – Installation
CTRL-T – Tag Event
CTRL-R – T.C. Reader On/Off
ALT-F – Find Note
ALT-N – Find Next Note
ALT-T – Display Time Constant

LIST MANAGEMENT:
! – Change Event No.
@ – Change Sort Mode
3 – Recall Marks
– Renumber List
4 – Open Re-Edit
$ – Restore Last Marks
5 – Insert Event
% – Move Event(s)
6 – Close Re-Edit
^ – Change Record Start
F9 – Convert to Dissolve
F10 – Convert to Wipe
DEL – Delete Event(s)
CTRL-S – Soft Scrub

MISCELLANEOUS:
1 – Change Reels
2 – Title of Show
7 – Enter/Edit Note
& – Reset Display
* – Print List
9 – Disk Filing
(– Paper Tape
F – Drop/Non-Drop Frame
P – Program Start
? – Help/List Display

* see page 1-34 for alternate keys

OPERATING FUNCTIONS

CHANNEL SELECTION

To enter or modify time code information for either the record VTR or one of the six sources, make it the active channel by selecting it with the keys listed below:

> R – Select the R VTR
> A – Select the A VTR
> B – Select the B VTR
> C – Select the C VTR
> D – Select the D VTR
> X – Select the Auxiliary Input
> L – Select Black

The use of "L" to select black may seem a bit strange, but there's a reason behind this choice. It is necessary to use a mnemonic other than "B", since that's already being used to select the B VTR. The choice of "L" can be traced back to the edit screen displays of the old CMX-50 and CMX-300 systems, and will thus be familiar to seasoned CMX editors.

When you select one of the channels as the active channel, the channel name at the left of the display will be highlighted. All time entries and modifications then performed will affect only that channel.

If the edit type is a cut, selection of any of the six video sources (thus not including the Record VTR) will determine the source for the edit. If you select the Record VTR, the last selected source will remain as the source for a cut.

The keys listed above are also used to tell the system which sources are to be used in effects transitions, and are used to specify time codes or durations when transferring edit points around on the screen. They are also used for storing an edit point or duration in the constant registers, and for applying the constant registers to an edit point. These procedures are described in detail in the sections that follow.

MANUAL TIME CODE ENTRY & MODIFICATION

The functions listed and described below are used to enter time code information to be used in specifying an edit. The command summary is:

    I or F1   – Set In
    O or F2   – Set Out
        F3   – Trim In
        F4   – Trim Out
         T   – Trim (In / Out)
         N   – Mark In
         M   – Mark Out
    CTRL-D   – Set Duration
    CTRL-C   – Constant Registers

Set In

When "I" or F1 is pressed, the system will display the following prompt:

        SET IN:

Enter the desired time code number, and press ENTER. The work line area will be cleared, and the time code will be displayed in its proper position in the "IN" column, according to which channel is active.

When entering time codes during a SET operation, you do not need to enter leading zeros, nor do you need to enter colons. The system will automatically add any necessary leading zeros and colons. For example, if you enter "12314" in response to the "SET IN:" prompt, the system will display the time code as "00:01:23:14" in the edit data section in the upper portion of the screen.

Set Out

The Set Out function operates in exactly the same way as the Set In function, using "O" or F2, except that the prompt will be:

        SET OUT:

The same rules on leading zeros and colons apply, with the edit point being displayed in the "OUT" column.

Trim (In / Out)

The trim functions may be performed in either of two ways. You may use F3 or F4 to trim the in or out points of the active channel respectively, or you may press "T" to initiate a two-step process: first you tell the system you want to trim an edit point for the active channel, and then you tell it whether you want to trim the in or the out edit point.

Press "T", and the system will prompt:

TRIM IN OR OUT?

To trim the in edit point, press "I", and the system will then prompt:

TRIM IN:

To trim the out edit point, press "O", and the system will then prompt:

TRIM OUT:

When you have the "TRIM IN:" or "TRIM OUT:" prompt, you may then enter the amount by which you want to trim the edit.

> **Note:** The "T" dialogue option, as opposed to the more direct F3 and F4 key commands, is provided for two reasons: Though requiring two keystrokes, it is easier for touch typists, and like the "I" and "O" set in/out options, is carried over from Edit Lister 2.0 as a convenience for those who have gotten used to its command structure.

Positive and Negative Trimming

You may trim by either a positive or a negative amount. To trim by a negative amount, precede the amount with a minus (–) sign. You need not enter a plus (+) sign for a positive amount.

Trimming by a positive amount will result in moving the edit point to a later position on the tape (adding to the time code, resulting in a higher time code number).   **+ TRIM = Later on the tape.**

Trimming by a negative amount will result in moving the edit point to an earlier position on the tape (subtracting from the time code, resulting in a lower time code number).   **– TRIM = Earlier on the tape.**

Entering Trim Values

The value for a trim operation may be entered either in frames or time code, following the same rules used with most on-line systems:

If you enter a number without a colon, the system will assume you are entering the value in frames. Thus, if you entered "120", the system will interpret that to mean 120 frames (4 seconds), and will trim the edit point by that amount, either plus or (if you entered "-120") minus.

If you enter a number that includes a colon, the system will assume that you are entering the value in time code format. Thus, if you entered "1:20", the system will interpret that to mean 1 second and 20 frames, (50 frames), and will trim the edit point by that amount, either plus or (if you entered "-1:20") minus.

If you enter a trim value in time code format, you only need enter a single colon, and the colon may be located anywhere in the entry. For instance, if you wanted to trim an edit point by one hour, instead of having to enter "1:00:00:00", you could enter "1000000:", saving some keystrokes. You could also enter the trim value in frames, without limitation to the size of the number. For instance, a trim value of 30 minutes could be entered in frames: "54000", instead of "30:00:00".

On the typewriter-style keyboards used by computers, the colon is a shifted key, above the semicolon. To reduce the number of keystrokes and simplify things for the editor, the system will accept a semicolon (;) during a time code entry, and convert it to a colon.

As another method of reducing keystrokes, the "=" (equals) key serves as a double-zero key, returning a value of 00 during time code and frames entry. (The "–" (minus) key sets a negative value if it is the first key pressed during entries that can accept a minus value, but after at least one digit has been entered, then it too will return 00. After all, it's right there next to the "=" key, just waiting for a straying finger.)

Mark In / Mark Out (With Optional Time Code Reader)

With the optional time code reader card installed, and after software installation has been performed (see "System Installation" on page 1–3), Edit Lister will attempt to read time code for the active channel.

The time code read function may be turned on and off by pressing CTRL-R. When the function is on (and time code is being received), the time code numbers will appear at the right side of the active edit area, next to the frame code mode notation. When the function is off, no numbers will be displayed.

The mark function is used to mark in and out points for the currently active channel. To mark edit points for a channel, first select the channel. To mark an in point, press "N". To mark an out point, press "M". In either case, the current time code being read when the appropriate key is pressed will be transferred to the channel's in or out point area.

> **Note:** When the time code read function is not being used, or when time code is not being transmitted, it should be disabled by pressing CTRL-R. The reason is that the routines that read time code from the card will wait for a valid time code number for a certain length of time before a time-out forces it to conclude that no such numbers are forthcoming, and directs it to see if you're trying to issue a command. While no damage is done, leaving the mark function on in such an instance will result in a slightly sluggish response to keyboard commands.

Set Duration

If an in edit point for a channel has been established, you may enter a duration for the edit, rather than entering the out edit point. The system will add the duration to the in edit point to compute the out point, and display all three. If an out edit point already had been established, it will be replaced by the new out edit point determined by the system.

If no in edit point has been established, the system will compute the duration using 00:00:00:00 as the in point.

To enter a duration, press CTRL-D (hold down CTRL while pressing "D"), and the system will respond with the prompt:

DURATION:

As with trim values, durations may be entered either in frames or in time code format. If you use a colon, the system will interpret the entry as being in time code format, while if you don't use a colon, the system will interpret the entry as being in frames.

TRANSFERRING TIME VALUES

Time codes, durations and the constant registers may be moved about at will in a variety of combinations. For example, you may move the A VTR in edit point to the B VTR out edit point position, or make the B VTR duration the same as the R VTR duration, all with a very few keystrokes. Several examples and procedures follow:

Moving a Time Code to Another Source

For example, to move the A VTR in point to the B VTR out point, first select the B VTR by pressing "B". Then press "O" or F2 to get the Set Out prompt. Then press "A", indicating that you want one of the A VTR's times, followed by "I" or F1 to indicate that it's the A VTR's in point that you want. The screen would then show:

        SET OUT: A-VTR IN

Press ENTER, and the system will make the B VTR out point equal to the A VTR in point.

The important thing to remember here is that you first select the channel to which you wish to move a number, and then tell the system which number you want to "grab" and move to the selected channel's in or out point. (The edit point you "grab" is not affected or erased; you're simply making another edit point equal to it.)

Moving a Time Code Within a Channel

If you wanted to make the A VTR in point the same as the A VTR out point, the procedure is even simpler.

Simply press "A" to select the A VTR channel, then press "I" or F1 to indicate you want to set the in point, followed by "O" or F2, to indicate that that's the value you want to use for the in point. The screen will show:

        SET IN: OUT

Press ENTER, and the system will make the A VTR in point equal to the A VTR out point.

Moving a Duration

Durations may be moved about in a similar manner. For instance, to make the A VTR's duration the same as the B VTR's duration, first press "A" to select the A VTR, and then CTRL-D. Then press "B", followed by CTRL-D again. The screen will show:

> DURATION: B-VTR DURATION

Press ENTER, and the system will make the A VTR's duration equal to B VTR's duration (computing or changing the A VTR out point as necessary).

Trimming by Duration

You may trim an edit point by the duration of another channel, either positive or negative. To add the R VTR duration to the B VTR out edit point, for example, first press "B" to select the B VTR, then F4 (or "T" followed by "O") to trim the out point. Then press "R" to select the R channel, and then CTRL-D, and then ENTER. The system will add the R VTR duration to the B VTR's out edit point.

To subtract the R VTR duration from the B VTR out edit point, enter "–" before pressing "R" in the example.

CONSTANT REGISTERS

There are 10 constant registers, which may be used to enter any time value desired, and can be entered and applied in a number of ways.

To enter a constant, press CTRL-C (hold down CONTROL while pressing "C"). The system will prompt:

> CONSTANT # =   (0 - 9)

You may designate a constant register by entering a number from 1 to 9, or designate the 0 register by pressing ENTER. The system will then prompt:

> CONSTANT #N =

(Where N is the number of the constant you selected.)

You may then enter a time value, either in frames or time code format. The rules are the same as with entering trim and duration values: a colon will indicate time code format to the system, while the lack of a colon will indicate an entry in frames.

You may also make the constant equal to any edit point or duration displayed on the screen, by pressing the key that selects the channel containing the time value you want to load into the constant register (R, A, B, C, D, X or L), followed by the position of the value (F1 or "I", F2 or "O", "CTRL-D"). The value at the indicated point will be loaded into the constant register. You may also make the value in the constant register a minus value by first entering a minus (-) in response to the "CONSTANT #N =" prompt, before entering or indicating a value.

If you transfer an edit point or duration from the screen into a constant register, the constant register will retain the frame code mode of the channel from which the number was taken. If you enter a constant register by typing in the value, non-drop frame code will be assumed.

Applying the Constant Registers

You may use the value in the constant register to set an in point, an out point or a duration.

First select the channel for which you want to apply the constant, and then press either F1 or "I", F2 or "O", or CTRL-D, to either set in, set out, or set duration. When the system gives you the entry prompt, press CTRL-C. You do not need to press ENTER. The system will display registers 1 through 9, and ask which one you wish to apply. As indicated, the default will be constant 0. You may type the desired constant number, or press ENTER to use constant 0. The system will then transfer the value in the selected constant register to the point you have indicated.

Important Note: If the frame code mode of the channel to which you are applying a constant register is different from the mode of the constant, the number will change.

Trimming by a Constant Register

You may trim an edit point by the value of the constant register, either in positive or negative value.

To add the value in the constant register to the B VTR out edit point, for example, first select the B VTR channel, then Trim / Out, and then press CTRL-C. You need not press ENTER in such an instance. The system will offer the choice of constant registers as described directly above, and will then add the value in the selected constant register to the B VTR out edit point.

To subtract the value of a constant register from the edit point, press "−" before pressing CTRL-C. (Note—if the value in the constant register is already a minus value, it will always be applied as a minus value. In this case, entering a minus sign before pressing CTRL-C will have no effect.)

DROP-FRAME / NON-DROP FRAME SELECTION

The frame code mode for the five VTRs is automatically set according to the default frame code modes as set during the system installation process. This setting may be changed by first selecting the channel (R, A, B, C or D) of the VTR to be changed, and then pressing "F".

The current frame code mode is shown towards the right side of the screen by a letter in parentheses. "(N)" indicates non-drop frame mode, while "(D)" indicates drop-frame mode.

If you change the frame code mode of a channel containing edit points, those edit points will change, since they represent a total number of frames, and the equivalent time code numbers are different for the two modes.

The frame code mode for the record tape is normally set at the start of the session, and then left alone. The auxiliary and black channels will automatically match the setting of the record channel. The settings for the source tapes may be changed as necessary.

Edit Lister allows mixed frame code modes, and will handle in and out point and duration computation correctly. In displays and printouts, drop frame codes will be indicated by the use of a period between seconds and frames instead of a colon. In transmissions, disk files and paper tapes, frame code modes will be designated according to the list output format selected during the system installation.

Note: If you use E-Link to receive edits with mixed frame codes, we recommend setting the Record channel's mode manually before entering E-Link. Otherwise, E-Link will use the first frame code mode notation it receives (if any) to set the Record frame code mode. To manually set the Record channel to non-drop frame, press "F" twice (toggle to DF and then back to NDF).

EDIT TYPES

There are five basic types of edits possible with Edit Lister, being:

> F5   – Cut
> F7   – Dissolve
> F8   – Wipe
> F6   – Key
> ALT-S – Still (Sony BVE-800)

Of these five types, two—Cut and Still edits—involve one source channel (i.e. A-VTR, B-VTR, C-VTR, D-VTR, AUX or BLACK) and the record VTR. The other three—Dissolve, Wipe and Key—will combine the signals of two of the source channels, sending them to the record VTR.

Again, the descriptions that follow are intended to be pure operating instructions. For a detailed discussion of the procedures for describing an edit transition to the computer, please refer to the tutorial material that follows in Sections Two and Three.

CUT

The F5 key is used to make the upcoming event a cut. In this mode, the video signal coming from the active source channel will begin at the source IN point, and will be recorded on the record VTR tape starting at the R-VTR IN point.

The edit will end at the OUT point defined for either the source channel or the R-VTR, or at both OUT points if both are defined and their durations are the same. (Please see "Notes on Edit Durations" on page 1-27.)

The source channel for the event is defined by the active channel when the event is recorded, and will be indicated at the upper left portion of the screen. If the A-VTR is the active channel, for instance, the display would show:

        CUT - A

Cut is the default mode. The system will reset to the cut mode after each event is recorded.

DISSOLVE

The F7 key is used to make the upcoming event a dissolve. If you've been entering events at the keyboard, the system will attempt to predict the "FROM" and "TO" channels based on previous actions, and will offer them as default channels.

In this mode, the source video signal will begin at the "FROM" channel IN point, will continue to the "FROM" channel OUT point, will then dissolve at the defined rate to the "TO" channel IN point, and continue to the "TO" channel OUT point, where the event will end as a cut.

If the "FROM" channel duration is zero, the dissolve will begin immediately at the start of the event. If the "FROM" channel duration is one frame or more, the event is considered to be a "delayed dissolve".

When the F7 key is pressed, the system will ask:

        DISSOLVE FROM:

Press ENTER to use the offered default (if any), or select one of the sources channels—"A", for example—and the system will then display:

        DISSOLVE FROM: A   TO:

Press ENTER to use the offered default (if any), or select another source channel—"B", for example—and the system will show:

        DISSOLVE FROM: A   TO: B
                DURATION:

Enter the duration of the dissolve in <u>frames</u> (not time code format), and press ENTER. If, for example, you were to enter "30" for the duration (a one-second dissolve), the system would then display:

        DISSOLVE
        A TO B   30

The maximum for an effect duration is 32766 frames (more than 18 minutes), while the minimum is 0 frames. If you have defined a dissolve, and later wish to change the dissolve duration, simply press F7 again. Since a dissolve has already been specified, the system will ask only for a new duration. To change the FROM and TO sources, first change the event to a cut, and then go through the dissolve setup process.

WIPE

The procedures for defining a wipe are the same as for a dissolve, through the entry of the effect duration, except that F8 is pressed instead of F7. As with dissolves, the system will attempt to predict "FROM" and "TO" channels, and will offer them as default channels. Once the duration of the wipe has been entered, however, the system will then issue an additional prompt:

```
WIPE FROM: A   TO: B
  DURATION: 30  WIPE CODE:
```

Enter the wipe code as specified for the switcher used by the on-line system (which will vary from switcher to switcher—check the on-line system switcher's manual). After entering the wipe code "17", for example, and pressing ENTER, the system would display the following in the upper left portion of the screen:

```
WIPE   17
A TO B     30
```

The actual performance of the edit with regard to IN and OUT points and durations will be executed in exactly the same manner as with a dissolve, except that the effect transition will be a wipe instead of a dissolve.

As with a dissolve, if a wipe has already been specified, you may change the duration and wipe code by pressing F8. The system will skip the queries regarding the sources, and simply ask for a new duration and wipe code. If you only want to change the wipe codes, you must still enter a duration the same as it already is set. Pressing ENTER without entering a duration would erase the existing duration, making it 000. Again, to change FROM and TO sources, first select a cut, and then the wipe dialogue.

KEY

As before, the dialogue follows standard conventions. The F6 key is used to make the upcoming event a key. In this mode, the signal from a channel defined as the FOREGROUND source will be keyed or matted (depending on switcher settings) over another channel defined as the BACKGROUND source. The foreground signal may be dissolved in and/or out, may be delayed before it appears, and the entire signal comprised of both the background and foreground may be faded from or to black.

There are two types of keys: Key (or Key In) and Key Out. In a Key event, the signal starts with the background source in the clear, and the foreground is then dissolved on at a defined duration. In a non-delayed key, if the dissolve duration is 0, the foreground may "pop on" one frame into the event, depending on the on-line switcher.

The Key Out function allows the event to start with the foreground signal up full, and is most commonly used to extend a key over two or more scenes—also called "popping a key." Key Out procedures will be described in a separate section beginning on page 1-26.

When the F6 key is pressed, the system will display:

    KEY, OK?

If you want the event to be a Key Out, press "N" for no, and the display will toggle (switch) to "KEY OUT, OK?". Subsequent depressions of the "N" key will toggle the prompt back and forth. When you press "Y" for yes or ENTER in response to the prompt, the system will then display the following:

    KEY, OK?   BACKGROUND:

Select the source channel (A, B, C, D, X or L) that is to be the background—"A", for example—and the system will then display:

    KEY, OK?   BACKGROUND: A   FOREGROUND:

Select the source channel that is to be the foreground—"X" (Auxiliary), for example—and the system will display:

    KEY, OK?   BACKGROUND: A   FOREGROUND: X
    DELAY:

The system is asking whether you want to delay the appearance of the foreground after the start of the event. If you press ENTER, you establish a key with no delay, and the system will proceed to the next prompt. If you enter a value, either in frames or time code format, however, the system will delay the appearance of the foreground by the amount entered. If you enter a delay amount, the system will skip the next prompt.

If no delay has been entered, the system will then ask:

    KEY, OK?   BACKGROUND: A   FOREGROUND: X
    DELAY: FADE IS OFF, OK?

As with the Key/Key Out query, this function is toggled with the "N" key, with the alternative being "FADE IS ON, OK?". This determines whether the entire signal—foreground and background—will be faded up from black together, using the switcher's downstream fade-to-black hardware. To accept the setting displayed, press ENTER.

Once the Fade query has been answered, or if it was skipped by establishing a delay time, the system will then ask for the effect duration:

```
KEY, OK?          BACKGROUND: A  FOREGROUND: X
DELAY:            FADE IS OFF, OK?   DURATION:
```

Enter the duration in frames (not time code format) at which you want the foreground (and background, if fade is on) to dissolve on, and press ENTER. The maximum is 32766 frames, and the minimum is 0. Again, if the duration is 0, the switcher may wait a frame before "popping" the foreground on. This would better be done with a Key Out. With a delayed key this would present no problem.

If you had entered a duration of 30 frames, for example, the system would then show the following display in the upper left portion of the screen:

```
KEY
X OVR A   30
```

If you had entered a delay of, for instance, 60 frames, the above display would look like this:

```
KEY
X OVR A   30
00:00:02:00
```

If no OUT point is given for the foreground source, then it will be continued from its starting point through the end of the edit. If an OUT point is given for the foreground source, then the total sum of the foreground duration plus its dissolve duration plus the key delay (if any) must not be greater than the total event duration, as set either by the R-VTR duration or the background source duration (or both, if equal).

KEY OUT

The key out procedure and dialogue are similar to those used in setting up a normal key, with some minor exceptions. In a key out event, the foreground

starts up full, and may then either extend through the entire scene, or be faded out during the scene.

To define a key out, press "N" in response to the "KEY, OK?" prompt as described on page 1-25, and then press ENTER. The dialogue will be the same as with a normal key, except that the system will not ask for a "DELAY:". A delay would defeat the purpose of a key out, and is thus not used. The system will proceed directly to the "FADE IS OFF, OK?" query, which in the case of a key out indicates a fade to black at the end of the event, instead of a fade up from black at the start of the event, as in a normal key.

A Note on the Fade Function

In a key out with the fade function on, the foreground duration must be equal to the background duration minus the fade duration. Thus, if the background duration is 10 seconds and the fade duration is 30 frames, the foreground duration must be set at 9 seconds. The foreground and background will fade out together.

In a key in, if the fade setting is ON, the foreground and background will likewise fade on together. In order to first fade on the background, and then, after an interval, fade on the foreground key, you will have to define two events. The first would be a simple dissolve from black to the background source, ending at the point at which you want the foreground to appear. At that point, you would make a match-frame edit on the background using the key function, and specify a key with no delay.

STILL FRAME (Sony BVE-800)

This type of event appears in the list in a format similar to a cut, but with an "S" in place of the "C" designation, and with no duration shown for the source tape. The event duration is taken from the RECORD channel duration.

To enter a still frame event from the keyboard, press ALT-S to select Still.

NOTES ON EDIT DURATIONS

If no OUT points have been defined for either the R-VTR or the appropriate source channel(s), an attempt to record the event will cause the system to beep and display the message "NO EDIT DURATION DEFINED", except in the case of a dissolve or a wipe. In the latter two cases, if the effect duration is

greater than 0, it will define the total edit duration, resulting in a "transition only" event.

Open-ended edits are thus not possible. (As is the case with editing systems when the Record function is off, or in the Re-edit mode.)

If OUT points have been defined for the source channel(s) (the selected source in a cut; the background source in a key; or the "TO", or "FROM" and "TO" sources in a dissolve or wipe) and for the R-VTR, and the total durations for the source(s) and the R-VTR do not match, the R-VTR's OUT point will override and define the event duration, as with most editing systems.

THE RECORD COMMAND

Once all of the necessary edit information has been specified, the event may be recorded in memory by pressing CTRL-Q (holding down the CTRL key while pressing "Q").

EDIT MODE SELECTION

There are a total of seven possible combinations of edit modes, comprised of video, audio channel one and audio channel two. These seven combinations are:

V/A1/A2	– Audio 1, Audio 2 & Video
V/A2	– Audio 2 & Video
V/A1	– Audio 1 & Video
V	– Video Only
A1/A2	– Audio 1 & Audio 2
A2	– Audio 2 Only
A1	– Audio 1 Only

Edit Lister 3.0 also supports audio channel 3, where the on-line editing system permits. In such cases the number of edit mode combinations is fifteen (see the information on the Format files on page 1-9).

The commands to activate and deactivate the various channels are outlined below:

Video Channel

The "0" (zero) key turns the video channel on and off. The video channel will "toggle" on and off with each press of the "0" key.

Audio Channel 1

The "–" (hyphen) key turns audio channel 1 on and off. Audio channel 1 will "toggle" on and off with each press of the "–" key.

Audio Channel 2

The "=" (equals) key turns audio channel 2 on and off. Audio channel 2 will "toggle" on and off with each press of the "=" key.

Audio Channel 3

The "+" (plus, or shift/=) key is used to turn audio channel 3 on and off. Audio channel 3 will "toggle" on and off with each press of the "+" key.

SPLIT EDITS

A split edit separates the audio and video channels, allowing you to delay the start of either the audio or video portions of the signal by a specified amount.

When the "S" key is pressed, the system will display the following prompt:

        SPLIT A/V, DELAY WHICH?

To delay the video, press the "V" or "–" key (video), while to delay the audio, press the "A" key (channels 1 and/or 2, depending on which is active) or the "–" or "=" keys (channels 1 and 2 respectively—note that not many editing systems can split one audio channel and not the other). The system will then ask for the amount of the delay:

        VIDEO DELAY =
(or)
        AUDIO DELAY =

Enter the amount of the delay either in frames or code, and press ENTER. The system will then display the edit data in the upper left portion of the screen. The example that follows shows a 60-frame video delay.

```
V/A1/A2
DELAY V
00:00:02:00
```

The split edit mode is not available for dissolves, wipes or keys. Also, Audio channel 3 may not be split.

MISCELLANEOUS COMMANDS AND FUNCTIONS

With a few exceptions, the upper row of number keys are used to perform the miscellaneous functions and settings described below:

VTR REEL NUMBERS

Entering VTR reel numbers (for the "imaginary" VTRs) is done with the "1" number key.

To assign reel numbers, select the channel for which you wish to change the reel number, and press "1". The system will prompt (using the A VTR channel as an example):

```
A-VTR REEL =
```

Enter the reel number you wish to assign to the A VTR, including any alpha suffix (e.g., "B", to designate a B-roll), as necessary.

The range of reel numbers possible is 1 – 9999 (where permitted by the on-line editing system list format), and the alpha suffix range is A – Z.

Important Note: Some on-line editing systems will not accept a reel number higher than 253 (or other number), and some on-line systems will not accept an alpha suffix, or a suffix other than "B". Check the manual for the particular on-line editing system that will be used to perform the auto assembly of your edit decision list.

SHOW TITLE

To enter or change the show title displayed at the top of the screen and contained in printouts, disk files and paper tapes, press "2". The system will then prompt:

TITLE:

You may enter a title of up to 73 characters. If you enter more than 73 characters, the system will recognize only the first 73 characters. After entering the title, press ENTER.

All text entry in Edit Lister 3.0 is performed by means of a word processor-style line editor. See page I–10 for information.

To clear (erase) the title, press "2", and then press CTRL-END.

PROGRAM START

The program starting time may be changed by pressing "P". The current program start time will be displayed. If the current setting is correct, press ENTER to retain it. To change the program start time, simply type in a new value (time code format will be assumed, so colons aren't necessary). As soon as you type the first number of the new start time, the old start time will be erased.

When you have entered a new program starting time, the program duration shown in the duration column between the RECORD and A-VTR durations will be re-computed.

ENTER NOTE

The Edit Lister has a capacity of storing up to 5 notes per event of up to 77 characters each. These notes may be used for any purpose. Notes must begin with a non-numeric character. Also, notes must not start with the words "TITLE" or "SPLIT", and the character combination "FCM" should not be included in a note.

Notes are entered by pressing "7". The system will prompt:

```
NOTE FOR EVENT #:        (ENTER SELECTS HIGHLIGHTED EVENT)
```

As per standard single-event selection procedures, you may either type the number of an event and press ENTER, or use the cursor keys to highlight the desired event and then press ENTER to select it.

The list will be re-displayed with the selected event second from the top. If no notes previously existed for the event, a space for the note will be opened in the list. If one or more notes had already been entered for the event, the cursor will appear at the start of the first note. In this case, you may edit the note, or may use the down arrow key to move down to edit a following note, or to move past the last note and open a space for a new note.

Notes entry and editing is performed with the line editor (see page I–10).

To delete a note, place the cursor at the start of the note with the procedures outlined above and press CTRL-END.

The notation function is also used for specialized functions that are not directly supported by Edit Lister, the most prominent of these being GPI triggers.

For instance, to enter a GPI trigger for an ADO effect on a CMX-3400, press "7", and enter the appropriate information in the following format:

```
GPI   ADO        PULSE      001    A        01:52:28:17
      ^^   ^^^^^^^        ^^^^    ^^^^ ^^^^^
```

(Spaces are indicated by the " ^ " symbols below the entry.)

Consult the operator's manual for the particular on-line system you will be using for the specific GPI format for that system.

> **Note:** Entering GPI information with Edit Lister is somewhat cumbersome. While doing so is possible, we suggest simply entering a note that a GPI trigger will be needed, and then doing the actual entry once the list has been loaded into the on-line system (which will also allow rehearsal). If you do this, your note should not start with the letters "GPI".

Edit Lister has a notes capacity of 65535 characters. Notes memory is dynamically allocated, with each note taking up only as much memory as its length requires, plus an overhead of from 4 to 6 bytes (characters) for identification. There is thus enough memory to allow for one 66 character note for each event in a full list of 900 events, or longer or more notes per event in shorter lists.

FIND NOTE

You may search the list for a note or a note fragment with the Find Note command, ALT-F. The system will ask for the text you wish it to find.

The Find Note function will find any matching text anywhere within the list and anywhere within a note, and will re-display the list starting at the event with a matching note or note fragment. For instance, if you ask it to find the word "KEY", it will find the word "KEY" regardless of its position within a note.

To find the next occurrence of the note, press ALT-N.

If the text you enter for the search is not found, or after the last occurrence has been found, the system will report "NOT FOUND IN LIST."

> **Note:** Notes are stored in memory in the order in which they were entered, rather than by either the event number or the record in point of the events with which they are associated. The Find Note function will reflect this fact in the order in which it displays events and their notes.

TAG EVENT

The Tag Event function allows you to mark an event to prevent its being transmitted to an editing system or included in an ASCII text disk file or paper tape. This is equivalent to the "event disabled" function of an editing system. (Tagged events will be saved in Edit Lister format disk files, and will appear on the display and in printouts.)

To tag an event, use the UP ARROW or DOWN ARROW keys to highlight it, and press CTRL-T. An asterisk will appear to the right of the event to indicate that it is tagged.

To un-tag an event, simply highlight it, and press CTRL-T. The asterisk will be removed.

RESET DISPLAY

In the unlikely event that the display is disturbed, with the result that "garbage" appears, the screen may be cleared and re-written by pressing "&" (shift/7).

DISPLAY LIST

The edit list in memory may be displayed starting at any event number by pressing "8". The system will then ask:

```
DISPLAY:  STARTING EVENT # OR RECORD IN POINT =
```

You may enter an event number or a record time code (indicated by at least one colon). The system will search the list and display it at the event you specified, continuing for from 2 to 9 events, depending on their types.

If you enter a record in time, and the record in point you enter doesn't exist, the system will start the display with the event having the next earliest record in point to the one you entered, or will abort the display function if the time code is not within the list's range of record time codes.

(When subsequent events are recorded in memory, the display will be re-written starting with the event preceding the newly-recorded one.)

Display Scrolling

The cursor keys are used to scroll through the list, either an event at a time, a screen at a time or to the top or bottom of the list.

To move to the top of the list, press HOME. The first event in the list will become the highlighted event.

To move to the bottom of the list, press END. The last event in the list will become the highlighted event.

To scroll up one event, press the UP ARROW (or "[") key. The event directly above the current event will become the highlighted event (the display will be scrolled up by one event if necessary).

To scroll down one event, press the DOWN ARROW (or "]") key. The event directly below the current event will become the highlighted event (the display will be scrolled down by one event if necessary).

To scroll up five events (with the first displayed event highlighted), press the PG UP (or "{") key. To scroll up 10 events, press CTRL-PG UP.

To make the last event displayed the new first event displayed (with the last displayed event highlighted), press the PG DN (or "}") key. To make the last event plus five the new first event displayed, press CTRL-PG UP.

Full Screen List Display

The full screen list display mode allows the entire screen to be used to display the list. This allows you to examine up to 24 events at a time.

The full screen list display mode is turned on and off by pressing CTRL-F. When this mode is active, Edit Lister will respond only to display commands. Also, the effect of the PG UP / PG DN and CTRL-PG UP / CTRL-PG DN commands is doubled.

> **Note:** Single event scrolling (using the UP ARROW and DOWN ARROW keys) in this mode is somewhat tedious and rather useless in most circumstances, due to the time needed to re-write the entire display with events.

PRINT LIST

The edit decision list can be printed by pressing "*" (shift/8, or the unshifted "PrtSc" key). The system will then prompt:

```
1 - COMPLETE LIST        2 - PART OF LIST
```

If you press "1", the entire list will be printed.

If you press "2", the system will then prompt:

```
PRINT EVENT #:        (ENTER SELECTS HIGHLIGHTED EVENT)
```

As per standard multiple-event selection procedures, you may either type in a starting event number followed by a comma and then an ending event number, or you may use the cursor keys and ENTER to select a starting event, and then use the DOWN ARROW key and ENTER to highlight a range, or press ENTER twice to print from the highlighted event through the end of the list.

If the list has been cleaned, a message so stating will be printed at the top of the first page. If a disk file name has been established, this will next be printed. The show title will then be printed, followed by the record frame code mode (only to preserve convention—the record time codes will also indicate drop or non-drop frame by the use of a period or a colon), and then finally the list itself.

Page breaks and form feeds will be inserted according to the page length that has been defined in the system installation procedure, with page numbers and the show title added at the top of each new page.

At the end of the list, a summary of the reels used (either in the entire list, or within the range of events printed) will be printed, in the order in which they appear in the list or portion of the list.

As a prompt on screen will indicate, you may press ESC while printing is in progress to cancel printing at any time.

DISK FILING SYSTEM

Edit decision lists may be stored in disk files, with a maximum of 900 events per file. Lists may be stored as "Edit Lister" files in a special highly efficient condensed format, which are not compatible with disks used by any other editing system, or as ASCII text files, which are much less efficient, but allow for list transfer via modem, list merging, and transfer to some editing systems.

In addition to the list itself, Edit Lister format files also store the constant registers, Edit Out Port settings, and other information used by Edit Lister.

The disk filing system allows you to save a list in memory to disk, recall a list from disk, and delete a file from a disk.

To enter the disk filing system, press "9". The system will display your choices:

```
DISK:   S = SAVE LIST    L = LOAD LIST    D = DELETE LIST
```

When you have made a selection, the system will then ask for the file type:

```
FILE TYPE:   E - EDIT LISTER    A - ASCII TEXT
```

If your system is installed with the file disk assigned to the default drive (the same drive as the one used for the System Master disk), the system will attempt to load, save or delete files from the System Master disk. We recommend that you use the system installation procedures (see page 1–4) to change to a file disk, not using your System Master disk to save files.

SAVE THE LIST

If you press "S" (followed by "E" or "A") in response to the Disk Filing prompt, and are saving a newly-created list, the system will ask you for a file name.

If the list in memory was loaded from a disk file, the system will offer to save it under the same name by which it was loaded. To change the file name, press "N", and type in the new name at the prompt.

Enter a file name of no longer than 8 characters, and press ENTER. Filename rules closely follow MS-DOS conventions: the name may contain any alpha/numeric character, and the following special characters:

```
$ # & @ ! % ( ) – ' _ `
```

Edit Lister will not allow illegal characters in a file name.

The decimal or period and an extension are not allowed, since they are used by Edit Lister to identify lists in the directory (the extensions "EL3" or "ASC" are hidden during the load and delete displays).

With either a new file, or one on which you wish to change the file name, Edit Lister will not allow you to save the list under a name that's already in use on the file disk. The only way to do so is to first delete the existing file with that name, and then save the new file under the old file's name.

LOAD A LIST

If you press "L", (followed by "E" or "A") the system will erase the screen display, and show you a directory of the files of the appropriate type on the file disk in the assigned file disk drive.

To load a file, use the cursor keys to highlight the file you want, and press ENTER. To cancel the load operation, press ESC.

Loading an Edit Lister format file will replace any file presently in memory. Loading an ASCII file will add the new file to any list in memory, either sorted by event number (Sort by Event Number), sorted by record in times (Sort by Record In) or added at the end of the current list (Sort Function Off).

Edit Lister 3.0 files are identified by the extension .EL3. ASCII text files are identified by the extension .ASC. If you wish to load an ASCII text file created on another system, you may first need to rename it with the .ASC extension.

> **Note:** Edit Lister 3.0 cannot load Edit Lister 2.0 .EDL files. To convert a file from Edit Lister 2.0 format to 3.0 format, save the file in ASCII text form, and then load it into Edit Lister 3.0 and save it back to disk.

DELETE A LIST

If you press "D" (followed by "E" or "A"), the system will show you a directory of the files on the file disk, and ask which one you want to delete. Follow the same procedures used in loading a list to select the list you wish to delete. Edit Lister will then ask you to verify the deletion. To continue, you must press "Y" to confirm the deletion.

FORMATTING DISKS

Edit Lister stores edit files on standard MS-DOS format disks. The disks used to store lists do not need to have either DOS or the "COMMAND.COM" file installed, if they are to be used solely for edit lists. Disks are therefore formatted using the DOS "FORMAT" command. The procedures for a system equipped with two floppy drives would be as follows:

Insert your DOS disk in drive A, and a blank disk (or one that you wish to re-cycle) in drive B. If the computer is off, turn it on, and wait for the system prompt ("A>").

To proceed, type "FORMAT B:" (without the quote marks), and the disk in drive B will be formatted.

Disks may also be formatted from within Edit Lister by means of the DOS Commands function (see page I–10).

READING AND WRITING 8-INCH DISKS

The D-Link 8-inch floppy disk option (described in its own Appendix) allows Edit Lister to load or save edit lists in an industry-standard format.

PAPER TAPE

The ability to read and punch paper tapes is built into Edit Lister. (The operation of the GNT paper tape punch/reader is described in Appendix C.) If your system is not equipped with a paper tape punch/reader, you should not issue paper tape commands. Doing so without the unit connected may result in the computer "freezing up."

MERGING LISTS

Lists that have been saved as MS-DOS ASCII files, on 8-inch disks or on paper tape may be merged with other lists. When any one of these file types are loaded, they will be added to any list in memory, according to the sort mode.

In Sort by Event Number mode, events will be placed in the list according to their event numbers. In Sort by Record In mode, events will be placed in the list according to record in times. With the Sort function off, the new events will be added to the bottom of the list. In the case of duplicate event numbers, the list should be renumbered after loading a list.

To avoid merging a new list with one in memory when loading files from the three sources mentioned, first delete the list in memory, and then load the new list.

HELP SCREENS

There are two pages of help information available to remind you of key commands any time you're in the main list management section.

To display the first help screen, press "?" or "/". The list display in the lower portion of the screen (if any) will be erased, and the first help screen will appear. To display the second help screen, press "?" or "/" again. To return to the list display from the second help display, press "?" or "/" again.

The help screens are reproduced in Appendix A.

LIST MANAGEMENT

The list management functions of Edit Lister follow closely those of high-level editing systems.

Most of the keys used to issue list management commands are located in the top row of the keyboard.

RENUMBER LIST

Edit Lister allows you to renumber the list that is currently in memory, starting with the first event or at a specified event, and renumbering all events through the end of the list, or through a specified ending event.

To renumber events, press "#" (shift/3), and the system will ask:

```
START NEW NUMBERING WITH #:
```

Enter the new starting number, and press ENTER.

The system will then prompt:

```
STARTING EVENT #:          (ENTER SELECTS HIGHLIGHTED EVENT)
```

Enter the number at which you want to start renumbering, or use the UP ARROW and DOWN ARROW keys to select the starting event and press the ENTER key to highlight the starting event. If you use the arrow keys and ENTER to highlight an event, you may then use the DOWN ARROW key to select a range of events. If you simply press ENTER again with a single event highlighted, Edit Lister will assume you wish to renumber through the end of the list.

Note that if the number you start your list with is higher than 100, a full list (of 900 events) would end with an event number larger than 999. Edit Lister wouldn't mind this, and would actually keep track of the list properly, except that in displaying event numbers, Edit Lister will only display or transmit the right-most three digits (unless the Edit Out Format defined during system installation permits four-digit event numbers). Event # 1004, therefore, would be displayed as 004. This can cause confusion—not so much for Edit Lister, but for you, the user, and for the on-line system.

CHANGE EVENT NUMBER

This function allows you to change the event number of an event, either the current one, or one opened in the re-edit mode.

To change the event number, type "!" (shift/1). The system will ask:

EUENT * =

Enter the desired event number, and press ENTER.

This feature allows you to start numbering your list at any number (less than 1000) at the start of a session. You may also change the number of any event in the list.

The system will not accept an event number that is already in the list during keyboard entry. (Duplicate events are accepted during ASCII input, which includes E-Link, ASCII disk files or loading from paper tape. To correct this situation, renumber the list.)

The "current event number" remembered by the system will not be altered by changing to a lower event number. After the event with the lowered event number is recorded, the system will reset to the previous "current event number".

The "current event number" is altered by changing to a higher event number than any already in the list, and subsequent events will be numbered upwards from the new number.

SORT MODE

The sort mode selection discussed on page 1–11 may be changed at any time by pressing "@" (shift/2). This will cause the Sort Mode selection sequence to begin, with the system offering the three different sort modes (Sort by Record In, Sort by Event Number or Sort Function Off) in sequence. Type "N" in response to an offered mode to display the next setting, or press ENTER to select the offered mode.

> **Note:** Changing sort modes during editing will cause no harm, but it may result in a rather strange sequence in the list. This feature is provided in case you chose the wrong setting when starting up.

OPEN RE-EDIT

This is perhaps the most useful feature in any editing system, and the re-edit functions in Edit Lister are quite similar to high-level editing systems.

Edits may be called up out of memory, modified, and inserted back into memory. If the record out point of the edit has been changed, the system will, if requested, "ripple" the list.

To re-edit an event, press "4". The system will prompt:

RE-EDIT EVENT #:   (ENTER SELECTS HIGHLIGHTED EVENT)

Enter the number of the event you wish to re-edit and press ENTER, or use the UP ARROW or DOWN ARROW keys and ENTER key to select an event. The system will pull the event out of memory, display it in the active event area in the upper portion of the display, and show "RE-ED # XXX" high-lighted in place of the event number display. It will then re-display the edit list in the lower portion of the screen, starting one event before the one that has been opened in re-edit mode.

You may then make any needed changes in the edit, as if it were the active event. You may, for instance, change a dissolve to a cut or vice-versa, change the edit modes or audio channels, change in or out points or durations, etc.

Note: In Re-Edit mode, a number of functions that would interfere are disabled. Examples would include the delete, move, renumber and E-Link functions, the keyboard commands for which are inactive during a Re-Edit.

INSERT EVENT

When you have made the necessary changes to an edit in the re-edit mode, you may then insert it into the list. To do so, press "5". If you have changed the record out point of the edit, the system will ask:

RIPPLE LIST, OK?

If you press "Y", the system will change all record start times that are higher than the start time of the event you have changed. If you press "N", the system will simply insert the event into the list with its new values, and will leave the rest of the list alone. This is one of the queries for which there is no default value. You must respond with either "Y" or "N", as the system will tell you if you press any other key.

The system will decide whether to ask if you want to ripple if you have changed the record out point, according to the following rules:

Edit Lister will ask if you want to ripple if you have changed the duration of the edit or the record in point. But if you have changed the duration of the edit and the record in point, and the new record out point is the same as the old record out point, the system will not ask if you want to ripple the list—it will simply insert the edit, close the list, and return to normal edit mode.

Thus, if you shorten the edit by three seconds, and then trim the record in point by plus three seconds also, the record out point would be the same as it was originally, and the list does not need to be rippled.

Whether or not you tell the system to ripple the list, when the edit is inserted into the list, the system will recall the numbers that had been established in the active event area, and will re-display the list, showing the changes you have made.

CLOSE RE-EDIT

This function allows you to exit the re-edit mode without changing the edit as it appears in the list. To do so, press "6".

Thus, if you open an edit and are in re-edit mode, and then change your mind, simply press "6". The system will close the re-edit mode without making any changes to the list.

RECALL MARKS

The Recall Marks function allows edit points to be recalled from the list without having to re-open an event. To do so, press "3". The system will then prompt:

```
MARKS FROM EVENT #:        (ENTER SELECTS HIGHLIGHTED EVENT)
```

Type the number of the event from which you wish to recall marks and press ENTER, or use the UP ARROW or DOWN ARROW keys to select the event and then press the ENTER key to complete the selection. The edit points for the event will be displayed in the active edit area. Note that the edit mode and type are not recalled by this function.

RESTORE LAST MARKS

Every time you record an event in memory, the system automatically updates the source and record in times. Before it does so, however, it stores the in and out points, or "marks," in a buffer. The in and out points for the last edit are therefore always available, and may be recalled by pressing "$" (shift/4). As each new edit is recorded, its marks replace the previous set of marks in the buffer.

CHANGE RECORD START TIMES

This function allows you to change the record start times in a list, either from the start of the list or from an event within the list, through either a specified event or the end of the list.

For instance, if you have built a list with a record start time of 1:00:00:00, and find that the tape you're going to be editing onto was blacked and coded with time code starting at 2:00:00:00, this function will let you change the record start time to the two-hour value.

You can also use this function to open up or close a "hole" in a list, by starting where you want to create or close a hole, and updating through the end of the list. You could, for instance, open a series of holes for the insertion of commercial breaks.

To change the record start time, press " ^ " (shift/6). The system will ask:

```
CHANGE RECORD START
STARTING TIME CODE =
```

Enter the new starting time code number in time code format (indicated by at least one colon in your entry) or in plus or minus frames to be added or subtracted from the existing record start time, and press ENTER.

If you enter a time code value (or, actually, any number with a length greater than four digits) this value will be used as an absolute time code. If you enter a frames value (assumed if you have not included a colon and the number is four digits long or less), the value will be used as a frames offset from an existing time code value.

The system will display either the new starting time code or the amount of the change in frames, and will ask for the starting event number for the change:

   STARTING EVENT #:   (ENTER SELECTS HIGHLIGHTED EVENT)

Enter the number of the starting and ending events at which you want to start changing record in times, or use the UP ARROW or DOWN ARROW keys and the ENTER key to select the starting event. If you use the cursor keys to select and highlight a starting event, you may select a range of events, or press ENTER again to change the record start times from the selected event through the end of the list.

The system will then change the record start times for all edits from where you told it to start through the end of the list or where you told it to stop.

DELETE EVENT(S)

This function allows you to delete either a single event, a group of events or the entire list.

To delete an event, a group of events or the entire list, press DEL (or the back-space key). The system will display:

   DELETE EVENT #:   (ENTER SELECTS HIGHLIGHTED EVENT)

To delete a single event number, enter the number of the event to be deleted, and press ENTER, or use the cursor keys to select the event.

To delete a range of events, enter the first event number to be deleted followed by a comma, and then the last event to be deleted (e.g., "8,12"), and then press ENTER, or use the cursor keys to highlight a range of events.

To delete the entire list, enter "A", and press ENTER.

In all cases, the system will then ask:

              DELETE THIS EVENT? (Y/N) (or)
              DELETE THESE EVENTS? (Y/N) (or)
              DELETE THE LIST? (Y/N)

This is a safety check. If you press "Y", the system will delete the event(s) or the entire list, depending on your instructions. If you press "N", the system will abort the operation.

If you are deleting a single event or a group of events, the system will ask if you want to ripple the list, just as in a re-edit.

MOVE EVENTS

This is a very useful feature that lets you move either a single event or a block of events within the list. To move an event or events, press "%" (shift/5). The system will ask:

```
   MOVE EVENT #:          (ENTER SELECTS HIGHLIGHTED EVENT)
```

To move a single event, type in its number, or select it with the cursor keys. To move a block of events, type in the number of the first event to be moved, followed by a comma, and then the last event number to be moved (e.g., "5,8") and press ENTER, or highlight a range of events with the cursor keys after selecting a starting event and press ENTER. The system will then show the event number or range to be moved and ask:

```
   TO FOLLOW EVENT #:         (ENTER SELECTS HIGHLIGHTED EVENT)
```

Enter the number of (or use the cursor keys to select) the event that precedes the position in the list where you want the events you are moving to be located. The system will ask:

```
   MODIFY RECORD TIMES?
```

Your answer to this query is very important! You must tell the system either "Y" for yes, or "N" for no; there is no default answer. If you answer "N", the system will move the events without changing the record times. Only the order of the events in the list will be changed. (This is equivalent to the CMX-style "MOVE #" function.)

If you press "Y" (for YES), the system will first open up a space in the list where the moved events will go. It will then move the events into their new position, rippling the record in times of the moved events according to the starting codes of the events that were there originally. It will then ripple the record in times following the original position of the moved events to fill in the hole left behind. (This is equivalent to the CMX-style "MOVE" function.)

This feature is very useful when you need to move a complete scene (consisting of a number of edits) to a different place within a program. It can also be used to "swap" two contiguous edits.

> **Note:** It is <u>extremely</u> important that the portion of the list that you are moving in such a situation is clean. Should the final event in the group you are moving consist of an over-record, the total duration of the group of events will be incorrect, and correcting your list after such a move will be a tedious task.
>
> **Also:** Do not move a greater number of events than the amount of event memory left available. For example, if you have 850 events in memory, this means that the amount of event memory left available is 50 events (900 total minus 850). An attempt to move more than 50 events in such an instance would result in errors.

AUTO-CONVERT CUTS

This function allows you to convert cuts in a list to dissolves or wipes from the preceding event with a minimum number of keystrokes. It is very useful when working with a cuts-only off-line editing system.

To convert a cut to a dissolve, press F9. To convert a cut to a wipe, press F10. In either case, you'll be asked to select an event, either by typing in its number or by using the cursor keys.

When you have selected the event to be converted, you will first be asked for a duration. Type in the duration of the dissolve or wipe, and press ENTER.

If you are converting a cut to a wipe, you'll then be asked for a wipe code. Type in the wipe code, and press ENTER.

The cut in the list will automatically be converted to a dissolve or wipe from the preceding event. If both events use the same source reel, a B-roll will automatically be created in the list. If the previous event ended from a B-roll, the "to" source will be made the original reel number, without the "B".

ANIMATION MODE

This function allows you to have the system build an animation list for you automatically. It is selected by pressing CTRL-A. If you issue the CTRL-A command without having established a record and/or source starting time code, the system will beep and report:

```
RECORD & SOURCE TIMES NOT SET
```

You should have a starting record in point, and a starting source time code for tape sources. If you are using an auxiliary source, such as a camera, you need not enter a time code. The system will use 00:00:00:00 as the starting time code in such a case.

The system will then ask:

SOURCE INTERVAL =

This allows you to "skip" a fixed number of frames or seconds on a source tape. For instance, to "pixilate" a tape, you might want to skip 30 frames on your source tape between each "exposure". You may enter an interval in frames or in time code format (indicated by the inclusion of a colon). The source interval may be any amount, either positive, negative, or even zero (as for creating effects). The system will then ask:

NUMBER OF FRAMES PER EVENT =

Enter the number of frames for each "exposure". This would typically range from 1 to perhaps 30, depending on the effect you're trying to create.

The system will finally ask:

NUMBER OF EVENTS =

This is the total number of "exposures" to be made, up to the limit of the list capacity. If you enter too large a number (more than the list capacity minus events already in memory), the system will so advise you.

When you have completed the dialogue, the system will begin building the list, reporting "Recording" as it does. When the system is finished, it will display the list, starting with the first event recorded in that sequence.

E-LINK
(Edit System Communications Module)

(Information on the physical connection to editing systems and further discussion of the E-Link module are provided in Appendix B.)

The E-Link module allows your computer to receive and send edit information directly to and from an editing system via an RS-232 connection. This adds the full power of Edit Lister to your off-line system.

To display the E-Link menu, press CTRL-E. The system will display E-Link's four functions:

```
E-LINK:       1 = DIRECT INPUT     3 = DIRECT OUTPUT
              2 = INPUT BUFFER     4 = OUTPUT BUFFER
```

.Press the appropriate number key to select the option you want, as described below.

E-LINK INPUT MODES

There are two input modes available, with the choice between them depending on the manner in which the editing system most conveniently sends data.

The Direct Input mode is designed to work with editing systems that transmit each edit as it is made. This function of the editing system was originally designed to allow the list to be either printed or punched on paper tape as both a back-up, and as a storage medium for systems that are not equipped with a list memory. The Convergence ECS-90 series systems, the EECO IVES and the Paltex Abner are good examples.

The Input Buffer is designed to receive a list from editing systems that transmit groups of edits. Examples would include the Sony BVE-800 and BVE-900, the Convergence 195, etc. It is also used to receive a complete list from high-level systems such as the CMX 3400, the Grass Valley/ISC systems, the Convergence 200 series, the Sony BVE-5000, etc.

The Input Buffer receives the list, and defers reading it. Instead, the list is stored in raw ASCII form in a special disk buffer file. Once the list is loaded, the system then reads the list, and stores it in the main list memory.

Direct Input

When you select function 1, if there are already events in memory, all new events will be added to the list in memory, if any. To start a new list, delete any existing list in memory before entering the direct input mode.

The screen will then clear, and a prompt line will appear:

```
Notes may be entered following an edit.   Press ESC to return to main section.
```

As indicated, you may enter a note after you've made an edit simply by typing it in on the computer keyboard, and then pressing ENTER.

Otherwise, you may for the most part ignore the computer while you are editing. It will "listen" to the editing system, storing edits in memory as they are received.

Edit Lister 3.0 also stores each event in a special backup file on disk (either the System Master disk, or the Files disk if Edit Lister is running from a RAM disk). This backup file, which is called "INBUFFER.ASC", is created as insurance against a power failure, keyboard lockup or any other calamity.

In the event of catastrophe, the backup file can be recovered by loading the INBUFFER file as an ASCII text file. If you're running Edit Lister from a floppy disk or hard disk, use the system installation procedures to set the file drive to match the System Master drive. If you're running Edit Lister from a RAM disk, the backup file will be on your designated Files drive. (This is one reason why lists should always be saved to a physical file disk, rather than to the RAM disk.)

When you save the list being received to disk, the INBUFFER.ASC file will automatically be deleted from disk.

Two Notes: Whenever you run Edit Lister, the pointer to the end of the INBUFFER.ASC file is reset to the start of the file, and any previous data is overwritten. Also, notes entered at the keyboard are <u>not</u> included in the file.

When you are finished with the edit session, or if you wish to return to the main section to perform list management, press ESC, and the system will return you to the main section. You may move back and forth between the E-Link module and the main list management section without affecting the list in memory.

Input Buffer

The input buffer is used by selecting option 2 from the E-Link menu. The list loaded will be added to any existing list in memory. To load a fresh new list, first delete any list currently in memory. When the input buffer is selected, the system will display:

```
Reading from Edit System In Port. (ESC when complete.)
```

(The Input Buffer temporarily "borrows" the memory normally used for notes. If there are notes in an existing list in memory, E-Link will temporarily save them in a disk file, reporting "Clearing buffer" while doing so. When the list has been received, it will be saved in another disk buffer file, and the notes will be reloaded.)

> Note: E-Link's input buffer has a capacity of approximately 815 lines.

To transfer a list from an editing system to Edit Lister, first prepare the editing system to transmit, and then select E-Link option 2. You may then start sending the list from the editing system.

When the transmission is complete, press ESC. E-Link will save the list in a disk buffer file, and will then read the list into main memory. While it does, it will report:

```
List received and now being read.
```

E-Link will store the list received in memory, adding it to any existing list already in memory. When it has finished reading the list, the system will delete the buffer file, return to the main list management section, and will display the start of the list.

E-LINK OUTPUT MODES

Edit Lister 3.0 offers two different output modes, both of which allow for transmission of edit data to an editing system.

The Direct Output mode sends events directly from memory. This eliminates the need for buffering the list prior to sending, but also results in very brief pauses between events as Edit Lister reconstructs the events in the appropriate ASCII text format as established during the system installation procedures. Some editing systems may be sensitive to these brief pauses, resulting in a time out similar to the one Edit Lister performs in its Input Buffer mode.

The Output Buffer reconstructs events before transmitting them, buffering them to a temporary disk file first. Transmission is then performed in a steady stream.

When selecting an output mode, we recommend first trying Direct Output. If the receiving editing system has problems receiving the list, then try the Output Buffer. In a sense, the Output Buffer is provided as a backstop for the Direct Output mode.

Direct Output

When you choose the Direct Output mode by pressing "3" from the E-Link menu, the system will then offer the following options:

```
1 - SEND COMPLETE LIST    2 - SEND ONE AT A TIME    3 - SEND BLOCKS
```

The first option will transmit the complete list, starting with the title, record frame code mode and then the entire list.

The second option will transmit one event at a time, starting anywhere in the list in memory. The transmission of each event will be triggered either by the receipt of an XON signal from the editing system (Device Control Code 17 – CTRL-Q), or by the press of any key at the computer keyboard. This mode may be used to drive an appropriately-equipped single-event editing system in auto assembly mode.

The third option will transmit a block of events of a selected size, starting anywhere in the list. After the first group has been transmitted, the next block of the same size may be transmitted. Transmission is triggered in the same manner as with the second option discussed directly above. This mode may be used to drive editing systems with medium-sized memories in partial auto assemble mode.

In all three cases, Edit Lister will ask if it should include notes in the transmission (some editing systems cannot handle notes). When you have told it yes or no, it will then report:

```
Press any key to start sending list.
```

Again, if the editing system sends an XON character, transmission will begin automatically. Otherwise, you should issue the load command at the editing system, and then immediately press a key on the computer's keyboard to start transmission. You may also press ESC to cancel transmission.

If you have selected option 2, Edit Lister will transmit the first event (beginning at your designated starting event), will then scroll the list on the screen to highlight the next event, and will report:

> Ready to send next event.

It will wait for an XON signal or a keypress, repeating this process through the end of the list or your designated ending event. You may also press ESC to cancel the transmission.

If you have selected option 3, Edit Lister will transmit the first block of events, will then scroll the list on the screen to highlight the starting event of the next block, and will report:

> Ready to send next block.

It will wait for an XON signal or a keypress, repeating this process through the end of the list or your designated ending event. You may also press ESC to cancel the transmission.

Output Buffer

The Output Buffer offers the options of sending the entire list or a portion of the list. Selecting the Output Buffer will result in the following prompt:

> 1 – SEND COMPLETE LIST   2 – SEND PART OF LIST

If you transmit the complete list, the transmission will start with the show title and record frame code mode, followed by the list itself. If you send part of the list, the transmission will consist of only the list portion itself.

When you have made this selection, Edit Lister will then ask:

> INCLUDE NOTES, OK?

Again, some editing systems cannot accept notes within the list. If you press "N", the system will strip notes out of the list while buffering it. Pressing "Y" or ENTER will cause any notes to be included in the list as it is transmitted.

The system will then begin to buffer the list, showing the following display during the process:

    Buffering list.

When the list has been buffered, the system will display:

    Press any key to start sending list.

As with the Direct Output mode, with some editing systems you should issue the editing system's load command first, and then immediately press a key on the computer keyboard. If the editing system sends an XON (CTRL-Q), which is commonly used to turn on a paper tape reader, Edit Lister will automatically start sending the list. You may cancel the transmission if it has not begun by pressing ESC.

E-Link Output Control

In all output modes, E-Link can be set to check for XOFF signals from the editing system (Device Control Code 19 – CTRL-S) to halt transmission and wait for an XON signal. This is determined by character 4 of the output Format File (for information on setting this character see The Format Files on page 1–9).

E-Link can also be told whether to wait for the DSR/CTS signals at the serial port to go high before transmitting data by means of the DSR/CTS setting in the system installation procedures.

When Edit Lister is ready to begin transmitting, it raises the Request To Send line (RTS) on the serial port. If DSR/CTS are enabled, it will wait for the editing system to raise those two lines before beginning transmission. If DSR/CTS are disabled, it will begin transmission regardless of the DSR/CTS lines.

Some editing systems may need to be able to control Edit Lister's transmission in this manner, but with others the attempt to use these lines can cause problems that prevent communication. In such cases, we suggest turning DSR/CTS off, using a conservative baud rate (1200 or 2400 baud), and strapping the handshaking lines together at the editing system (see Appendix B for further information).

SOFT SCRUB II

The Soft Scrub module incorporates six extended list management functions that perform modifications to a list contained in memory. The six functions are:

- Automatic List Cleaning (A-Mode or B-Mode)
- Change Reel Numbers
- Convert Edit Modes
- Source Time Code Rippling
- Change Frame Code Mode
- List Re-Sorting

Soft Scrub is selected by pressing CTRL-S from the main list management section. Once the module has been loaded, a cursor-driven menu will appear, as shown below:

Clean for A-Mode Assembly	Clean for B-Mode Assembly
Ripple Source Time Codes	Change Reel Numbers
Convert Edit Modes	Change Frame Code Modes

| RE-SORT BY: | Source Reel | Record In | Event # | Edit Mode |

SELECT OPTION WITH CURSOR KEYS AND PRESS ENTER, OR ESC FOR MAIN SECTION

AUTO CLEAN

There are two Auto Clean functions that perform automatic list cleaning. One cleans the list in preparation for A-Mode (sequential) assembly, while the other cleans the list in preparation for B-Mode (checkerboard) assembly.

CLEAN FOR A-MODE ASSEMBLY

Background Information

Lists cleaned with this function are optimized for A-Mode assembly. In A-Mode assembly events are performed in the order in which they appear in the

list. When an event is reached for which a source reel is not mounted, the editing system will stop and ask that the reel be mounted, after which assembly will resume.

A-Mode assembly is often used when the source tapes being used were shot at various locations, since it allows the on-line editor to match the video and audio for each shot as the assembly is being performed. It is generally most efficient in cases where there are few source reels.

During cleaning for A-Mode assembly, Auto Clean examines each event in a list, and compares it to other events in the list. In doing so, it examines the record in and out times, the source reel numbers and times, the edit types and modes, and the event numbers. It uses a complex set of rules to determine whether an event should be trimmed, deleted, moved or left alone. Some specific examples and a brief explanation of its operation follow:

Auto Clean A-Mode does not alter edit modes. For instance, it will not change an A2/V edit that has been completely covered by a video edit into an audio-only edit. It will, however, move the video-only edit to below the A2/V edit in the list, if necessary, for correct operation during auto assembly.

Auto Clean A-Mode will recognize inserts that "bridge" two base edits, and will move these to the proper position in the list for auto assembly.

In cleaning edits, Auto Clean A-Mode will modify an event only if the edit mode of the nearby event being compared matches or exceeds the event being evaluated. Thus, a video-only event with a record in point of 01:24:20:00 that follows an audio/video event with a record out point of 01:24:21:00 will not affect the audio/video event. If both events' edit modes matched, on the other hand (as if both were A2/V), then the record out point of the earlier event would be trimmed back to 01:24:20:00. Auto Clean A-Mode always examines edit modes first.

Over-recorded edits will be cleaned by having the record out time made equal to the record in time of a later edit, if the event number of the later edit is higher. (Source out times are also modified.) If the event number of the later event is lower, then its record and source in times will be trimmed to match the record out times of the event being considered.

If an event is followed by an event with the same record in time, but a shorter duration, then event numbers are also examined (after the edit mode rules are checked). If the following event has a higher event number, then the first event's in times will be trimmed to match the out time of the second event. If the edit modes match, the positions of the two events in the list will be

swapped. If the following event has a lower event number, it is considered to be redundant, and will be deleted from the list.

If the edit being considered is followed by an event with the same record in point, an equal or longer duration and a higher event number, and if the edit mode rules permit it, the edit being considered will be deleted from the list.

Lists cleaned for A-Mode assembly will always come out shorter than they started if there is any cleaning done. Thus, if the number of source reels is limited, it may result in more efficient assembly, even if all source material is well matched in terms of video and audio levels (a factor that might otherwise suggest B-Mode assembly).

> **Note:** Auto Clean will not clean key events, although it will delete them where appropriate. It will clean all other types of events.

Auto Clean A-Mode Operation

When Soft Scrub is run, the Clean for A-Mode Assembly function will already be highlighted, indicating that you may select it by pressing ENTER.

Soft Scrub will then offer two options, the first of which is the Join Events option. It will display the following prompt:

> JOIN EVENTS?   Yes   No

The "Yes" option will be highlighted, meaning that it is the default answer. Press ENTER to accept this option, or use the cursor keys or press "N" to highlight "No" and then press ENTER to refuse the join option.

If you select the Join option, once Auto Clean has cleaned the list it will scan through it, looking for events that can be joined together for maximum efficiency during auto assembly.

The most common such instance is the case of a match-frame dissolve or wipe that follows a cut (also called "tracking edits"). If the edit modes and sources match, and the in and out points are appropriate for joining, Auto Clean will join the first of the two events to the second, and then delete the first event from the list. (Any notes associated with the first edit will also be deleted.)

The Join option will combine two (or more) cuts, and will join cuts to dissolves or wipes. It will not join dissolve or wipes to following cuts (a much less common situation).

After you have decided on the Join option, the system will ask:

RENUMBER LIST?   Yes   No

Again, the default value is YES. Use the cursor keys or press "N" to defeat renumbering, or press ENTER to select the renumber option.

If you select this option, once Auto Clean has cleaned the list (and joined events, if you selected that option), it will renumber the entire list, starting with event number 1. This is exactly the same as renumbering the entire list from event number 1 from the main list management section of the program.

While Auto Clean A-Mode is Working

While it's working on the list, Auto Clean will show you what it's doing with a series of messages.

Auto Clean A-Mode starts by re-sorting the list by record in point, and will display:

Resorting by Record In Point

It will then start cleaning the list, displaying the following message while doing so:

Cleaning List - First Pass

While this message is displayed, Auto Clean is making its first pass, going through the list, comparing events, and cleaning the list as it goes. With a short list, this will take only seconds, but in the case of a full list (900 events) it can take several minutes, depending on how much cleaning is necessary.

Auto Clean will then make a second pass through the list, changing the message to "Second Pass" as it does so. On this pass, it is looking for events which can now be cleaned or deleted as a result of actions taken on the first pass. This second pass usually goes more quickly than the first.

When the list has been cleaned, if you have selected the Join option, the system will display:

Joining Events

Finally, if you have selected the Renumber option, the system will display:

```
Renumbering List
```

This message appears very briefly as the list is renumbered from the beginning.

When the list has been cleaned, the system will re-display the main Soft Scrub prompt.

CLEAN FOR B-MODE ASSEMBLY

Background Information

Lists cleaned with this function are optimized for B-Mode assembly. In B-Mode assembly, events are performed in "checkerboard" fashion, with all events that use the currently-mounted reels being performed from the start to the end of the list. Events that use reels that are not mounted will be skipped. When all possible edits have been made, the editing system will then ask for the next set of source reels, and will perform all events that it can using them, repeating this process until the show is complete.

· B-Mode assembly is often done when the source tapes being used were shot under tightly controlled conditions (such as in a studio), and where video and audio levels are well matched from scene to scene. It is generally most efficient in cases where there are many source reels.

Since events may be performed in any order, it is of critical importance that no events overlap. In order to create such a list, Auto Clean B-Mode will alter edit modes and will break single events into two or more events, as necessary.

For instance, if a video-only insert has been laid into the middle of an audio/video edit, Auto Clean B-Mode will create four events from the original two events: 1) The original audio will be made into one event. 2) The beginning video from the underlying A/V event will become a shorter video-only event that will end where the insert starts. 3) The original insert will be left as it was. 4) The ending video from the underlying A/V event that followed the insert will become a shorter video-only event that will follow the insert and end where the original A/V event ended.

In order to do its job, Auto Clean B-Mode separates the individual video and audio channels and cleans them one at a time. When cleaning a channel, the rules it follows are essentially the same as those used in A-Mode cleaning,

with the exception of the handling of inserts. After all channels have been cleaned, Auto Clean B-Mode will recombine the channels where possible into audio/video events.

Note: As with A-Mode cleaning, Auto Clean B-Mode will not clean key events (although it will delete them where appropriate), but will clean all other types of events.

Auto Clean B-Mode Operation

To perform B-Mode cleaning, use the cursor keys to highlight the Clean for B-Mode Assembly function and press ENTER.

You will then be offered five options, the first of which is the Join option, as with A-Mode cleaning:

       JOIN EVENTS?   Yes   No

In operation, this option differs from its A-Mode counterpart in that it only affects tracking dissolves or wipes that follow a cut. Auto Clean B-Mode will always join two cuts together when possible.

The next option determines whether Auto Clean creates split events where possible when recombining the channels after cleaning:

       CREATE SPLITS?   Yes   No

Some editing systems can handle split edits in the CMX-style format, while others cannot. For instance, if you were going to be transmitting the cleaned list to a CMX 3400 for assembly, you could enable this option, whereas if you were going to send the list to a Convergence 195, you should disable this option.

The next option allows you to have Auto Clean look for short events of less than 10 frames after the list has been cleaned:

       FIND SHORT EVENTS?   Yes   No

Since Auto Clean B-Mode breaks events apart to accommodate inserts, it is possible that "flash frames" may be created where an insert performed off-line didn't quite cover the start or end of an underlying edit. This option is intended to deal with such occurrences (as discussed further in "While Auto Clean B-Mode is Working" below).

The next option allows you to have Auto Clean look for holes in the list after each of the individual channels has been cleaned:

FIND HOLES IN THE LIST?   Yes   No

If selected, this option will search for gaps in the video or audio channels, and will bring them to your attention, offering several options for dealing with them (as discussed below).

Finally, the option of renumbering the list will be offered:

RENUMBER LIST?   Yes   No

This is the same as with A-Mode cleaning. If selected, the list will be renumbered from 1 after it has been cleaned.

When this last query has been answered, Auto Clean will then start cleaning the list.

While Auto Clean B-Mode is Working

While it's working on the list, Auto Clean will show you what it's doing with a series of messages.

Auto Clean B-Mode starts by re-sorting the list by record in point, and will display:

Resorting by Record In Point

It will then save a working copy of the list on the Files disk (make sure there's room on the Files disk—a large list may need as much as 200K bytes). It then starts cleaning the audio channels that have been used in the list, starting with audio channel 3, followed by channel 2 and then channel 1.

After a channel has been cleaned, if the Find Holes option has been selected, Auto Clean will search for any gaps in the list. If it finds one, it will re-display the list starting one event ahead of the hole, and will display the following message and options (using a hole between events 12 and 13 as an example):

A hole exists between events * 012 and 013.

```
1 - FILL THE HOLE WITH BLACK      2 - EXTEND EVENT 012 OUT TO FILL

3 - TRIM EVENT 013 IN TO FILL     4 - TRIM EVENT 013 OUT TO FILL <- -SKIP
```

Option one will create a new event numbered 000 to fill the hole with black (switcher black in the case of video, or mixer black in the case of audio).

Option two will extend the source and record out points of event 12 to fill the hole.

The third option will trim the source and record in points of event 13 to an earlier point to fill the hole.

Option four will trim the record in point to an earlier point and extend the source out point by an equivalent amount to fill the hole.

To leave the hole in the list as it was, press ENTER.

When the first audio channel used in the list (if any) has been cleaned, Auto Clean will save a copy of it to disk, and will re-load the work copy of the original list. It will repeat this procedure for all of the audio channels used in the list, and will then load and clean the video.

When the video has been cleaned, Auto Clean will start merging the audio channels back with the video, creating A/V edits where possible and inserting audio edits as separate events where in and out points of audio and video don't match. If the Create Splits option has been selected, it will attempt to create CMX-style splits.

After the list has been cleaned and re-merged, if the Find Short Events option has been selected, Auto Clean will search for events less than 10 frames long. If it finds such an event, it will re-display the list starting one event ahead of the suspect event, and will display the following message and options (using an event number 12 with a length of 5 frames as an example):

```
            Event * 012 is only 5 frames long.

1 - DELETE AND PULL UP LIST     2 - DELETE AND EXTEND PREVIOUS EVENT

3 - DELETE AND TRIM NEXT IN     4 - DELETE AND TRIM NEXT OUT   <- -SKIP
```

The first option, as indicated, will delete event 12 and pull up the list to fill the gap.

Option two will delete event 12 and extend the out points of the previous event to fill the gap.

Option three will delete event 12 and trim the source and record in points of the following event to an earlier point to fill the gap.

The fourth option will delete event 12 and trim the record in point of the following event to an earlier point while extending its source out point to fill the gap.

To leave the event alone and proceed, press ENTER.

Finally, Auto Clean will join events and renumber the list, according to whether those options were selected. It will then delete all of the temporary working files from disk, and return to the main Soft Scrub prompt.

Notes associated with events will pass intact through Auto Clean B-Mode as long as the event with which they are associated includes a video signal. **Notes associated with audio-only events will not be retained.**

Also, it's important to note that B-Mode cleaning can result in a significantly larger list than the original list. While the deletion of redundant events often offsets the growth caused by the breaking apart of events into multiple new events, it's not unusual for lists to grow—sometimes substantially.

This factor can cause problems if the list being cleaned is close to Edit Lister's capacity of 900 events. For this reason, we recommend that large lists (of 700 to 800 or more events) be broken into several smaller lists before B-Mode cleaning. If the total number of events in the separate lists comes out to less than 900 events, they can be merged back together (see Merging Lists on page 1–39).

General Notes on Auto Clean

Auto Clean does not automatically save the cleaned list to disk. When you return to the main Edit Lister display, if you try to load a new Edit Lister file or leave Edit Lister, a beep and a message will caution you that the list has not been saved. If you turn off the computer's power before saving the list, however, the results of Soft Scrub's efforts will go away.

The best way to learn how Auto Clean works is to enter or load some experimental "dirty" lists, print them out, and then run them through Auto Clean. Then print out the results and compare the two lists. This will not only demonstrate the logic by which Auto Clean operates, but it can also be an interesting exercise in edit decision list analysis and understanding.

RIPPLE SOURCE TIMES

This feature is provided mainly to perform automatic correction of source time codes to allow for the 13- to 14-frame displacement in time code reader head position between the Sony BVU-800 series VTRs and the older Sony BVU-200s or other makes of VTRs. It also provides for slight variations between different VTRs.

The source ripple feature is selected by using the cursor keys to highlight the Ripple Source Time Codes section of the Soft Scrub menu and pressing ENTER. The system will ask:

    RIPPLE SOURCE TIME CODES: All Reels   A Selected Reel

Select either All Reels or A Selected Reel with the cursor keys and press ENTER. If you asked to ripple a selected reel, Soft Scrub will ask:

    RIPPLE REEL NUMBER:

Enter the reel number of the reel to be rippled, and press ENTER.

Source times may be rippled through the entire list, or within a range. The system will thus ask:

    STARTING EVENT #:   (ENTER HIGHLIGHTS SELECTED EVENT)

You may either type in the starting event number, or use the cursor keys to highlight and select a starting event number. To ripple the entire list, you may enter "A" for all, and press ENTER. The system will then ask:

    ENTER SOURCE OFFSET IN +/- FRAMES OR CODE:

To add frames, you may simply type in the number (e.g., "13"), and press ENTER. To subtract frames, first type a minus sign, followed by the number of frames (e.g., "–13"), followed by ENTER. The use of a colon in the entry will indicate time code format to the system.

The system will go through the list or the designated range of events, adding or subtracting the number of frames you entered to the source reel you selected, or to all tape source times. Other sources, such as auxiliary or black, will not be changed.

When the ripple is finished, the system will return to the Soft Scrub menu.

The best way to determine the number of frames to offset your lists is by making a test edit, both off-line and on-line. Since there is a certain amount of variation from machine to machine, and since the procedures and machines you use to make your workprints are unique, making a test edit will establish the correct offset for the system you are using. Once you have determined the correct offset, it should remain constant as long as your procedures remain the same.

CHANGE REEL NUMBERS

This function allows you to have the system go through a list or a range of events and change all occurrences of a selected reel number to a new reel number. Its primary purpose is to correct the situation where you inadvertently forgot to change the reel number either on your editing system, or in the direct keyboard entry mode of Edit Lister. This would otherwise require manually re-opening each edit that showed an incorrect reel number, changing it, and inserting it back into the list.

The Change Reel Numbers function is selected by using the cursor keys to highlight the Change Reel Numbers section of the Soft Scrub Menu and pressing ENTER. The system will display:

    REEL NUMBER TO BE CHANGED =

Enter the incorrect reel number as it appears in the list, including the alpha suffix, if any. The system will then ask:

    NEW REEL NUMBER =

Enter the correct reel number, including any desired alpha suffix. The system will then prompt:

    STARTING EVENT #:   (ENTER SELECTS HIGHLIGHTED EVENT)

You may type in a starting event or a range of events, or use the cursor keys to highlight and select a starting event or a range. To change the reel number throughout the list, you may type "A" for all, and press ENTER.

When you have completed the selection, the system will scan through the list or range of events, and will change all instances of the original reel number to the new reel number. It will then return to the Soft Scrub menu.

CONVERT EDIT MODES

This function allows you to convert the list in memory from mixed audio and video to a list containing only specified audio or video elements. This is useful when the audio and video elements will be edited separately, as when audio sweetening will be performed using multi-track audio equipment.

The Convert Edit Modes function is selected by using the cursor keys to highlight the Convert Edit Modes section of the Soft Scrub menu. The system will then display:

```
CHANGE MODES TO:    U Only    A1 Only    A2 Only    A1/A2    U/A1    U/A2
```

> **Important Note:** This function changes the list in memory. You should therefore save the complete list to disk before performing this function.

Use the cursor keys to select the desired edit mode, and press return. The system will then ask (using a choice of video only as an example):

```
CHANGE ALL A/U EDITS TO U Only?        Yes        No
```

You may cancel the function by selecting "No". If you press ENTER while "Yes" is selected, the conversion will proceed. The dialogue for conversion to other modes follows the same pattern.

When you proceed with the conversion, the system will go through the list, converting audio/video events to the type of event you have selected. For example, if you are converting the list to audio 1 only, it will change either an AA/V or an A1/V event to A1. Any events that did not include audio 1 would be deleted from the list.

When the list has been converted, the system will return to the Soft Scrub main prompt.

To create separate lists of audio elements and video elements from a single list, you would first save the complete list on disk, and then convert it to, for instance, audio only.

You would then save the audio-only list under a different name (perhaps appending "A" or "A1" to the list name).

You would then re-load the complete list, and convert it to video only. The video-only list would then be saved on disk, also under a different name.

You then would have your three versions of the same list (complete, audio-only and video-only).

CHANGE FRAME CODE MODES

This function is provided to allow you to change frame code modes in a list, either for source reels or for the record reel. Source reels may be corrected individually or globally, and either within a range or within the entire list.

When you select this function by using the cursor keys to highlight it and then pressing ENTER, two options will be presented:

```
 CHANGE FRAME CODE MODES:     Source     Record
```

To change the record reel's frame code mode, use the RIGHT ARROW key to highlight "Record", and press ENTER. No further dialogue will ensue; the system will begin converting all record times to the alternate frame code mode.

If you select "Source", the system will then ask:

```
 CHANGE SOURCE TAPE FCM FOR:    All Reels    A Selected Reel
```

If you select "A Selected Reel", the system will ask for the reel number to be changed. Afterwards, or if you selected "All Reels", the system will ask for a starting event number:

```
 STARTING EVENT #:          (ENTER SELECTS HIGHLIGHTED EVENT)
```

You may type in a starting event or a range of events, or use the cursor keys to highlight and select a starting event or a range. To change the frame code mode for a reel or all reels throughout the list, you may type "A" for all, and press ENTER.

The Change Frame Code Modes function works by first converting the in edit points and durations from total number of frames (the way they are stored) to their time code equivalents according to their existing frame code mode, and then saving them back in the list according to their new frame code mode.

It is important to note that, as a result, it is possible for out points (which are computed) to change, or that source and record durations may not match after such a conversion. Since it is assumed that time code in and out points were

obtained empirically with Edit Lister, we would therefore recommend that you first print out you list before changing frame code modes, and compare it to the list that results from the mode change. Any minor corrections to out points will then be relatively easy to make.

RE-SORT LIST

Four active re-sort functions are provided: Sort by source reel, by record in points, by event numbers and by edit modes. When one of these functions is selected, no further dialogue ensues; the list is immediately re-sorted according to your selection.

Sort by Source Reel

This function is very useful with lists that have been cleaned for B-Mode assembly, especially if there are many source reels and the list is large.

When this function is selected, the list will be re-sorted according to the reel numbers of the "from" sources in ascending order. (In a cut, the source reel is considered to be the "from" source.)

Within each source reel grouping, the list will be further sorted by source in time.

This method of sorting is especially useful when editing from 3/4-inch or 1/2-inch masters to a 1-inch edited master, since the shuttle time of cassette machines is considerably longer than that of 1-inch machines.

Sort by Record In

This function will re-sort the list according to the record in times. It is the same sort function used automatically at the start of A or B-Mode list cleaning.

Sort by Event Number

This function re-sorts the list by event number. It can be useful when it would be helpful to examine the order in which events were originally performed during the off-line edit.

Sort by Edit Mode

This function re-sorts the list by either ascending or descending edit modes. This could be useful, for instance, if you had separated audio and video elements within a list, and then wanted to perform all video edits first, followed by all audio edits (or visa-versa).

"Descending Order" means all A/V edits, followed by all video-only edits, followed by all audio-only edits. "Ascending Order" would of course be the reverse order. (The 2-audio channel order of edit modes may be seen in the list under "Edit Mode Selection" on page 1–28. The 3-channel order of edit modes may be seen in the list under "The Format Files" on page 1–9.)

To re-sort by descending order of edit modes, select "Sort by Edit Mode" with the cursor keys and press ENTER. To re-sort by ascending order, hold down CTRL while pressing ENTER.

MISCELLANEOUS ITEMS

FILLING MEMORY

When 900 events have been entered, the edit list portion of memory will be full. If you attempt to record any additional events from the keyboard, the system will beep and display the following message:

```
EDIT MEMORY IS FULL
```

If you are receiving events in E-Link's direct input mode, any events received beyond the 900-event limit will cause a beep, and will be rejected.

In the input buffer mode, or when loading an ASCII file from disk or reading a paper tape, events beyond the 900-event limit will be ignored.

When memory fills, the list should be saved to a disk file.

NOTES ON DROP FRAME CODE

Drop frame time code is strange and wondrous stuff. It solves a major problem for the producer and/or director, but in doing so creates a host of new problems for the editor. In application it is subject to certain areas of interpretation. It has caused more grief for the designers of editing systems than perhaps any other factor (save, perhaps, for color framing—see below).

For those who have not worked with drop frame code, a brief description will be provided, followed by an explanation of how Edit Lister handles drop frame code.

What It Is & How It Works

The NTSC color television frame rate is an uneven number of frames per second. Rather than exactly 30 f.p.s., as with black and white television, the frame rate for color television is approximately 29.97 f.p.s.

SMPTE time code assigns each frame an individual address number, in the format of hours, minutes, seconds and frames. Since the actual frame rate is slightly slower than the time indicated by the code numbers, however, time code numbers in non-drop frame code will indicate a greater total elapsed time than actual clock time would indicate. Simply put, at the end of a one-hour tape, measured in real time, non-drop frame SMPTE time code will show 01:00:03:18—108 frames too many.

To solve this problem, an alternate form of time code—called "drop frame code"—was developed that subtracts these 108 frame numbers over the course of an hour. In order to make the time code come out even, two frame numbers are dropped every minute, on the minute, except the tenth minutes.

This means that, for instance, at 01:07:59:29, the next time code number would not be 01:08:00:00, as would be the case with non-drop frame code, but instead would be 01:08:00:02. The "00" and "01" frame numbers are dropped. The result is that time code numbers can be used to figure actual program running time.

This is a boon for producers and directors, but can cause headaches for editors. The problem comes when one tries to figure the duration of an edit that crosses over some of these dropped frames. There are also some interesting problems when one examines the duration display when working in drop frame mode.

How Edit Lister Handles Drop-Frame Code

Edit Lister stores edits in memory based on the source and record in point time code numbers and the duration(s) of the source(s). It does not store out points. If an out point is entered via the keyboard, or received as part of an edit or list coming through E-Link, that out point is used to compute the actual number of frames that make up the duration of the edit, according to whether the code is drop or non-drop frame.

The reverse happens when Edit Lister either displays an edit or sends it to another device: the duration is used to compute the out point, according to the frame code mode.

When storing in points and durations, Edit Lister converts time code numbers to absolute numbers of frames according to the frame code mode. This can be demonstrated by setting durations of 108000 frames (a non-drop frame "hour") with no in point established for two channels—for instance, the A-VTR and B-VTR channels—with one set for drop frame and the other set for non-drop frame.

On the non-drop frame channel, the out point will be shown as 1:00:00:00, while the drop frame channel will show an out point of 1:00:03.18. If you set a duration of 107892 (a drop-frame "hour") for the two same channels, the non-drop frame channel will show an out point of 00:59:26:12, while the drop frame channel will show an out point of 1:00:00.00.

The important point here is that both the out point and the duration shown for a channel are determined by that channel's frame code mode. This mix of frame code modes can become confusing, as demonstrated by the examples detailed above. The confusion arises from the fact that two channels can show what appears to be different durations (in time code representation), that actually total the same number of frames.

Another possible source of confusion arises from the fact that there are several points within each hour of drop frame code where durations can appear odd.

For instance, if you establish an in point of 1:00:30.00 and an out point of 1:01:30.00 for a channel set for drop frame, a quick comparison of the in and out points would seem to indicate a duration of one minute. The display, however, will appear as follows:

	IN	OUT	DURATION
A-VTR	01:00:30.00	01:01:30.00	59.28 (D)

In the example on the previous page, the actual duration is 1798 frames, which is a drop frame minute (except for the tenth minutes). The first minute from 0, however (which is how both edit points and durations are computed), does not drop two frames in drop frame code, since 00:00:00.00 is considered to be a tenth minute. The duration is therefore shown as 59.28.

In fact, there are instances in which a comparison of three channels that are all set for drop frame which, from looking at their in and out points, should seem to all be the same duration, will find the three channels actually showing three different durations.

If this sounds somewhat confusing, it's only because it is. The best way to understand how it all works is to spend some time at the keyboard, switching frame code modes and entering various in points, out points and durations.

Fortunately, Edit Lister most commonly gets its in and out points empirically, meaning that they are received either from an editing system via E-Link, or typed in at the keyboard. In such cases, the in and out points will always be correct as long as the frame code mode is properly set, and the possible confusion that duration displays can cause are only encountered during re-editing.

Important note: Changing the record VTR's frame code mode with a list in memory is hazardous to your list. Record in points will be altered, as will be seen the next time the list is re-displayed. Changing the record frame code mode should only be done via the Soft Scrub function designed to do just this.

COLOR FRAMING

The NTSC version of Edit Lister does not attempt to perform any color framing correction. Most on-line editing systems include some form of color framing, and will either automatically correct color framing, or call problems to your attention.

Many editors work to avoid color framing problems by making all video edits only on odd or even frame numbers. If this is done consistently, correcting for color framing during an on-line assembly is a simple task. This technique might be worth keeping in mind during off-line editing.

THE 24-HOUR ROLL-OVER

Edit Lister features a 24-hour roll-over. If an in point of 23:59:55:00 is established for an edit, for instance, and a duration of 10 seconds is entered, the out point will be shown as 00:00:05:00. In reality, the out point stored by Edit Lister would correspond to an hour 24 number; Edit Lister will automatically subtract 24 from the hours position of any such edit point when displaying it.

This function is provided to allow for editing onto master tapes with time code starting in the 23 hours range, leading up to a show start of 00:00:00:00.

This means, however, that record in points either entered at the keyboard or received via E-Link that have hour 0 time codes will be placed earlier in the list if the Sort by Record In is active. If you use the 23 hours range of a tape for colorbars and tone, slate, etc., and then start the show at 0 hours even, your bars and tone and slate will appear at the end of the list.

EXITING EDIT LISTER

To exit Edit Lister and return to DOS, type CTRL-X. The system will ask if you really wish to exit Edit Lister, and you must press "Y" to confirm. Any list in memory that has not been saved will be lost, as Edit Lister will so inform you.

ERROR HANDLING

While Edit Lister has proven to be extremely reliable and has been designed to be forgiving of errors, all computer programs are nothing more than electrical charges on silicon chips: they can, and on occasion have been known to fail. A power line spike, a cosmic ray (really!), or the wrong key punched during a port assignment can all cause errors.

Edit Lister has extensive error handling routines, but in extremely unlikely circumstances there's a chance that even these won't prevent the program from "crashing".

The most common errors involve disk files, including disk full errors and attempts to write to a disk without a disk in the drive, with the drive door open or on a write-protected disk. Edit Lister's error handling routines are designed to catch these errors, and during testing we have purposely induced these errors dozens of times, with the program gracefully recovering from them.

At the same time, we would urge caution. The errors mentioned above are what the DOS technical literature refers to as "Critical Errors". This term is not used for whimsical reasons. If one of the above errors occurs, we suggest that after you fix the problem (close the drive door, remove the write-protect sticker, etc.) and complete the action you started, you might consider making sure your list is safely on disk and then exiting Edit Lister and re-booting.

This suggestion is based on an extremely cautious position; it is quite probable that you could continue working without problems after several dozen assorted consecutive errors. The minute or so spent in re-booting, on the other hand, could be thought of as cheap insurance.

The other type of error that may be encountered occurs if you have backed up Edit Lister onto a hard or floppy disk and have not transferred all of the necessary files onto the backup disk (see "Backing Up Edit Lister" below). The error in this case will be a File Not Found error, which will be followed by two choices: (C)ont. or (S)top. Do not attempt to continue if this message should appear! Instead, press "S" to stop the program, and check to make sure that Edit Lister's necessary files are on the boot disk. If all else fails, contact Comprehensive Video Supply Corp. at (800) 552-2228 for assistance.

And finally, the overall moral here is useful whenever using any program on any computer: Save your data early and often.

BACKING UP EDIT LISTER

Using the INSTALL Program

Hard Disk

To install Edit Lister on a hard disk, boot up MS-DOS (check your DOS manual if you're not sure how to do this), and when presented with the "A>" prompt, place the Edit Lister Master disk in the A drive. The INSTALL command syntax is: INSTALL <drive>. Hard drives are most commonly designated as drive "C:", so you would enter:

```
INSTALL C:/H
```

The "/H" tells Edit Lister that you are installing it on a hard disk.

After you have completed this step, see "Edit Lister Files" below.

Backup Floppy

To make a backup copy of Edit Lister on a floppy disk, place the master disk in drive A, and a formatted disk in drive B. Then enter:

```
INSTALL B:/F
```

The "/F" tells Edit Lister that you're installing it on a floppy disk.

After you have completed this step, see "Edit Lister Files" below.

Edit Lister Files

The final step in the installation procedure is to transfer the rest of Edit Lister's files to the backup disk, using the standard DOS copy command. From the A> prompt, the syntax is:

```
COPY <filename> <target drive:>   (B: or C:)
```

The files that must be copied include a number of Edit Lister program, system and data files, along with the FORMAT files. All of the following files should be copied:

ELISTER	FORMAT1
ELSCRUB	FORMAT2
ELSETUP	FORMAT3
ELSYSTEM	FORMAT4
ELDATA	(and any other format files
ELHELP	that appear on the disk)

In addition, you may wish to copy the sample edit list files onto either your hard disk, or onto a floppy disk you will use for edit list files.

If you are using a hard disk, your edit list files must be kept in the same directory as the Edit Lister program, system and data files.

Uninstalling Edit Lister

To uninstall Edit Lister (to permit moving it to another hard or floppy disk) simply place the Edit Lister Master disk in drive A, and (from the A> prompt) enter:

```
INSTALL /U
```

The "/U" tells Edit Lister that you want to uninstall the program. The program will prompt you for the rest of the information.

Important Note: Should you ever need to re-install Edit Lister on a hard disk or backup floppy (as in case of damage to your hard disk or receipt of any future updates to Edit Lister) you <u>must</u> uninstall Edit Lister first, and then install the replacement copy.

TIME CODE EDITING THEORY

This section is designed to introduce the basics of computer editing to those whose previous experience has involved the use of control track editing systems, and to help give a better understanding of how to use Edit Lister.

The first section of this manual explained the various operations and functions of Edit Lister, in the context of an operator's manual. This section covers the operations and functions of time code editing in general, using Edit Lister as the example editing system.

We'll begin with an overview of the basic theory of computer time code editing, and then in section 3 we'll run through a brief sample editing session, during which you will build an edit decision list (EDL) as if you were preparing to go on-line.

THE BASIC THEORY OF COMPUTER EDITING

In the simplest possible terms, an edit decision list is a description of a program that can be understood by an on-line editing system computer. The computer will take this description and use it to control the record VTR and the various sources—including playback VTRs and switcher sources—in order to assemble an actual edited master videotape of the program.

To begin with, there are three basic and essential pieces of information that the computer will need before it can make any edit. These three things are:

1. A record in point (time code)
2. A source in point (time code)
3. An out point (for either the record VTR or a source)

In other words, you must tell the system where you want the edit to start on the record VTR tape (edit master); where the source signal starts on the source tape (or auxiliary source); and where the edit will end, determined either by a record out point, or by a source out point. These three requirements are true no matter what type of edit (cut, dissolve, key or wipe) is involved.

While most on-line computer editing systems allow you to start an edit without having an out point entered in a "direct, hands-on" mode (called an "open-ended" edit), when building a list off-line and when performing an auto-assembly of that list, the computer must be presented with an out point before the edit can be made.

In most cases, the out point for an edit is determined by the source out point. Exceptions would include precisely timed inserts into an edited master, where the out point is determined by a record out point to assure that nothing important on the edited master is recorded over.

It would thus appear that the basics of building an edit decision list are fairly simple, and this is essentially true. In making a simple cut, for instance, you would tell the computer from which source the signal is to be taken, what the edit mode is (audio/video, etc.), give it two in points and an out point, and then record it.

Simple cuts, however, represent only the beginning of what can be done with a computer editing system; the ability to make multiple-source effects transitions is what computer editing is all about, and this becomes a bit more involved, although not terribly much so.

EFFECTS TRANSITIONS

There are three basic effects transitions available in computer editing: dissolves, wipes, and keys. Dissolves and wipes are handled in a virtually identical manner with regard to time codes, while keys are a bit different.

The splitting of audio/video is properly question of edit modes within a cut, but will be included here because it produces what might be considered an "effects transition".

DISSOLVES AND WIPES

The basic concept behind dissolves and wipes is that the edit will involve two signal sources, wherein the edit will start with the signal from the first source (known as the "from" source), and then make a transition to the signal from the second source (known as the "to" source).

The main task in entering the information for a dissolve or wipe into the computer is describing to the computer when (or where, on the tape) to make

the transition, and how quickly to make the transition. In the case of wipes, it will also be necessary to tell the computer which wipe pattern to use.

There are two types of dissolve or wipe transitions, known as "immediate transitions" and "delayed transitions".

Immediate Transitions

In an immediate transition, the effect (dissolve or wipe) begins as soon as the record VTR has gone into record. This procedure is used to make the transition from the last scene recorded on the record VTR's tape to the next scene a dissolve or a wipe. Since all edits end as a cut, this gives the editor the continuing option of making the transition to the next edit an effects transition.

In an immediate transition, the "from" source is the one that was last used in the previous edit, and its in point will be its previous out point. No duration is established for the "from" source. The edit thus starts with what is known as a "match-frame", or "tracking" edit. It picks up exactly where it left off, and then immediately starts the transition to the "to" source, at whatever rate has been established for the effect duration.

In an immediate dissolve, the "from" source would be used only during the dissolve itself, as shown in the diagram below:

```
          EDIT POINT
              |
              |IN                          OUT
"FROM"    ___      _____
SOURCE        \  /
IN & OUT       \/    "TO" SOURCE
               /\
              /  \
              30
            FRAMES
           DISSOLVE
```
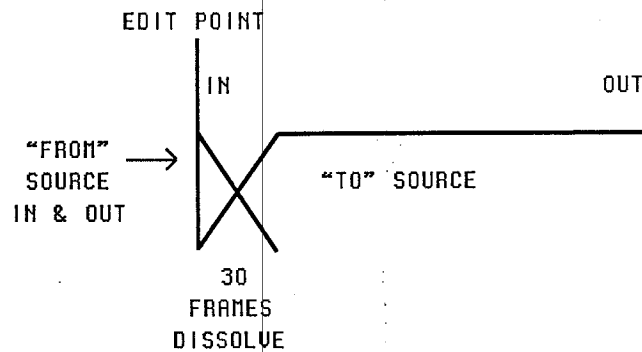
Delayed Transitions

In a delayed transition, a duration is established for the "from" source. The edit thus starts at the "from" source in point, and continues with that signal to the "from" source out point. When the "from" source out point is reached, the

transition is then made to the "to" source in point. The edit then continues to the "to" source out point, where the edit ends.

The fact that two difference sources (perhaps containing two totally different scenes) are used during a single recording pass on the edit master tape is the reason that edits are usually called "events". The term "edit" might be construed as indicating a single scene, whereas the term "event" indicates a sequence of actions taken by the editing system in a single pass on the edit master tape.

In a delayed transition, the "from" source will be "in the clear" (not mixed with any other signal) up to and including its out point. The "from" signal will then be mixed (dissolved or wiped) with the "to" signal for the duration of the effect. In the case of a 30-frame (one second) dissolve, for example, the "from" signal will be used for 30 frames past its out point, in decreasing strength, until the dissolve is complete.

The "to" signal, therefore, is not "in the clear" until the transition is complete, since it is being mixed with the "from" signal until the 30-frame dissolve is done. The diagram below illustrates a delayed dissolve:

```
                      DISSOLVE START
                            |
  IN              OUT | IN  |              OUT

  |--------------------\   /----------------------|
  |                     \ /                        |
  |   "FROM" SOURCE      X      "TO" SOURCE        |
  |                     / \                        |
  |                    /   \                       |
                        30
                      FRAMES
                     DISSOLVE
```
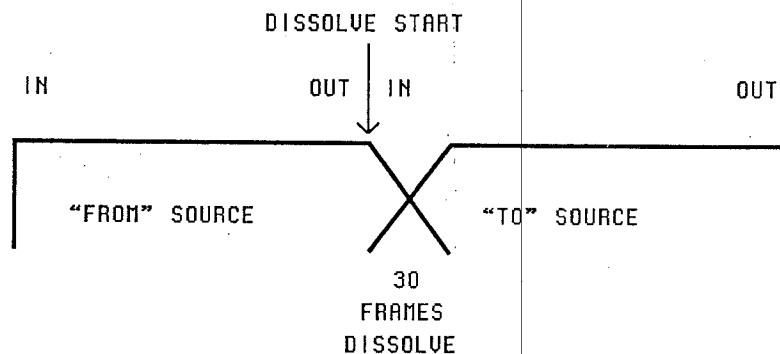
Defining Dissolve & Wipe Edit Points

While a basic cut requires only three edit points to be defined, a dissolve or a wipe will require that four edit points be defined in the case of an immediate transition, and that five edit points be defined in the case of a delayed transition.

For an immediate transition, the four edit points (time code numbers) that will be needed are:

1. A record in point
2. A "from" source in point (no duration)
3. A "to" source in point
4. An out point (for either the R VTR or "to" source)

For a delayed transition, the five edit points that will be needed are:

1. A record in point
2. A "from" source in point
3. A "from" source out point
4. A "to" source in point
5. An out point (for either the R VTR or "to" source)

Again, the handling of time codes is identical for dissolves and wipes. The only difference is in the visual effect created during the transition.

Describing the Transition

For both dissolves and wipes, the computer will need to know how long the transition effect is to be. The effective range using Edit Lister is 0 to 32766 frames (more than 18 minutes—far longer than allowed by any editing system we know of).

A "zero frame" dissolve or wipe would appear in the final edited master as a cut, since the "from" source would be used for 0 frames—that is to say, not at all. While the ability to make a zero frame transition may seem at first to be a useless feature, this is commonly done when the editor wishes to control the switcher manually, as for doing a non-linear effect (for instance, to do a dissolve that stops half way through, holds as a "super" for a moment, and then continues on through to the "to" source).

Even though the effect duration is zero, the computer still considers the event to be a dissolve, and will roll all three VTRs (the record VTR and two source VTRs, or other sources) in sync.

For wipes, the computer will also need to know which wipe pattern to use, and this question is part of the dialogue used when setting up a wipe. The most

commonly-used pattern numbers are those used by the Grass Valley Group 1600 series switchers.

With the GVG pattern numbers, the normal-direction wipes are defined by a one or two-digit number, such as 3, 17, etc. To reverse the direction of wipe travel, 100 is added to the pattern number—for example, 103, 117, etc.

If you know the pattern numbers used by the on-line computer you will be using (which you could, of course, photocopy out of the computer's manual to have on hand for reference), you may enter them into the list. If you don't know which wipe pattern numbers to use, enter "0" for the wipe patterns when building the list, and then change them once you've loaded the list into the on-line computer.

KEYS

A key can be thought of as a cut that combines two sources, with one of the sources, known as the "foreground" source, keyed or matted over the other source, which is known as the "background" source.

The background source provides the primary visual content of the edit, and starts and ends as a cut, or as a fade from or to black. The foreground may be keyed over the background for either the entire duration of the event, or for only a part of the event.

It is not possible to dissolve or wipe to a key in a single event—doing so will require either two events (a dissolve or wipe first, and then a key), or the creation of a sub-master tape that contains the key, which is then used as a "to" source tape in making the dissolve or wipe.

There are two basic types of keys: key in and key out. With both types, there is a "fade" option that allows the user to fade the combined signals from or to black.

Key In

This is the "normal" key mode, and is the default setting (the setting the computer will use unless told otherwise) when setting up a key.

In order to perform a key, the computer will need at least four, and possibly five edit points. These are:

1. A record in point
2. A background source in point
3. An out point (for either the R VTR or background)
4. A foreground source in point
5. A foreground source out point (optional)

The foreground source out point (and therefore, its duration) is only established when the foreground is to be taken out before the end of the event. If the foreground is to remain visible through the end of the event, then no out point (source duration) should be established (this is a CMX convention, and may not apply to other editing systems—refer to the on-line system manual).

There are two interrelated options in setting up a key. These are the "delay" option, and the "fade" option. The fade option is only available if the delay option is not used.

The Delay Option

In a key without a delay, the event will start with the background signal up full, and the foreground key will immediately be dissolved on at whatever duration was defined when the key was set up. The foreground key will then continue until its out point is reached, or, if no foreground duration was established, until the end of the event.

In a delayed key, the event will start with the background signal up full, but the foreground key will not be dissolved on until after the delay that has been established. In essence, a delayed key combines a cut and a key into a single event, thus saving time during assembly. As is the case with no delay, the foreground may then be dissolved out at its out point, or may continue through the end of the event.

The Fade Option

Normally, a key starts with the background video at full strength, with the foreground key being dissolved in on top of it, either immediately or after a

delay. The fade option allows you to fade both background and foreground up from black. This could be used at the start of a program, for instance, to fade the first scene and the opening title on at the same time.

Since both the foreground and the background will be faded up from black simultaneously, a foreground delay is not possible. For this reason, if a delay is established when setting up a key, the computer will skip the fade option query.

To achieve the effect of a faded and delayed key, you will have to perform two events: a dissolve from black to what will be the background signal ending as a cut, followed by a match-frame edit to the key that brings in the foreground source.

Duration

The computer will also need to know at what rate to dissolve the foreground key on and (in some cases) off. This is the duration that is part of the dialogue when setting up a key. The duration range is the same as with dissolve and wipe transitions: 0 to 32766 frames. A duration of 0 will cause the foreground to "pop on."

If no foreground duration is established, the foreground key will be dissolved on at the duration rate that has been established, and will stay on through the end of the event.

If a foreground duration has been established, then the foreground key will be dissolved on at the established duration rate, will continue until the foreground out point, and will then be dissolved off at the same duration used to bring it on. It is not possible, therefore to use different durations for the dissolve on and the dissolve off of the foreground key, without breaking the event into two events. (Achieving this effect will be explained in the paragraphs on Key Out events, below.)

If the duration established for dissolving on the foreground key is zero, the result will depend on the on-line system used during auto assembly. On many systems, the foreground will not appear until the second frame of the event, which may not be the effect you want. Making the foreground key appear over the background starting with the first frame of the event is what the Key Out option is all about.

The diagrams that follow illustrate various key in events:

```
   IN                    BACKGROUND  SIGNAL              OUT
   ┌──────────────────────────────────────────────────┐
   │╲  ┌───────────────────────────────────────────────
   │ ╲ │
   │  ╲│        FOREGROUND  SIGNAL
   │   ╲
```
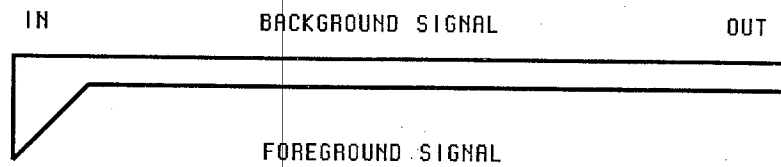
The event above is a key in with no delay, and no out point established for the foreground source (it therefore stays up through the entire event).

```
   IN                    BACKGROUND  SIGNAL              OUT
   ┌──────────────────────────────────────────────────┐
   │        ┌──────────────────────────────────────────
   │       ╱│
   │      ╱ │   FOREGROUND  SIGNAL
   │     ╱  │
```
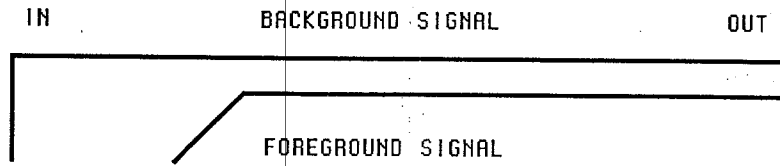
The above event is a delayed key in, with no out point established for the foreground source.

```
   IN                    BACKGROUND  SIGNAL              OUT
   ┌──────────────────────────────────────────────────┐
   │        ┌─────────────────────────╲
   │       ╱│                          ╲
   │      ╱ │   FOREGROUND  SIGNAL      ╲
   │     ╱  │                           ╲
```
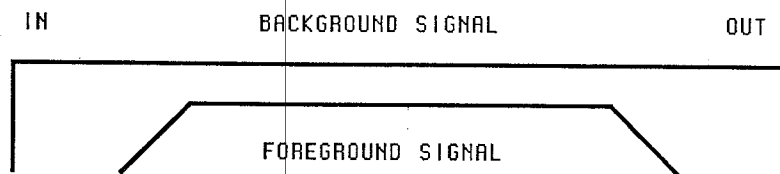
The above event is a delayed key in, with an out point established for the foreground source—it dissolves off before the end of the event.

```
   IN                    BACKGROUND  SIGNAL              OUT
           ┌────────────────────────────────╲
          ╱│                                  ╲
         ╱ │┌────────────────────────────╲    ╲
        ╱  ╱                              ╲
       ╱  ╱     FOREGROUND  SIGNAL         ╲
      ╱  ╱                                  ╲
```
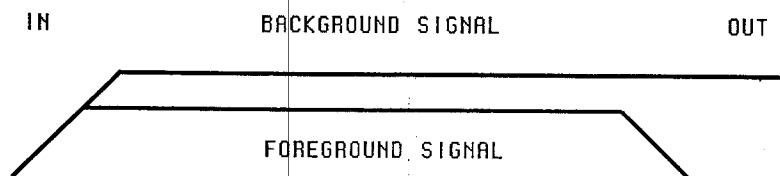
The above is a key in with fade on (foreground and background fade up from black together), and with an out point established for the foreground source.

Key Out

A key out is similar to a key in, except that the event starts with the foreground key up at full strength with the first frame of the event. This is particularly useful for extending a key over two or more scenes.

In a key out, the foreground key signal will continue to the end of the event if no foreground out point has been established, or may be dissolved off before the end of the event by establishing an out point with a foreground duration less than the background duration.

The delay option is not offered in a key out, since the whole point is to start with the foreground up at full strength.

The fade option is offered, however, and allows the foreground and background signals to be faded to black together. Just as with a key in, it is not possible to dissolve out the foreground key and then fade the background to black at a later point without performing two events—a key out first, to dissolve out the foreground, and then a match-frame edit to dissolve the background signal to black.

If you want to dissolve the foreground in at one rate, and then dissolve it off at a different rate, you'll need to define two events. The first would be a key in (with or without a delay), to bring the foreground on. Do not establish a foreground signal duration, so that the foreground is kept on through the end of the event. End the event at some point before you want the foreground to be dissolved off—say halfway through the scene.

The second event would be a key out. If the background scene is to continue, simply make the background in point a match frame to the old out point, and establish a foreground out point that will fade the foreground off wherever you want it to be dissolved off, and at whatever rate you want the dissolve to be.

The following diagrams illustrate various types of key out events:

```
 IN                      BACKGROUND SIGNAL                    OUT

   ┌─────────────────────────────────────────────┐
   │                                              │
   │         FOREGROUND SIGNAL        ╲           │
   │                                   ╲          │
```
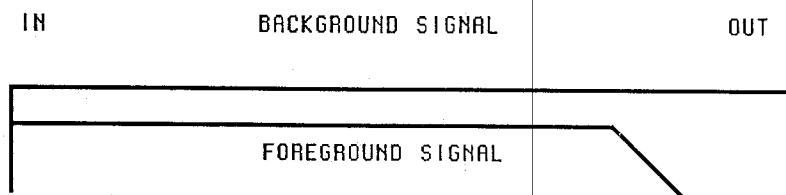
The above event is a key out, with an out point established for the foreground signal.

```
    IN              BACKGROUND SIGNAL           OUT
```

```
                  FOREGROUND SIGNAL
```
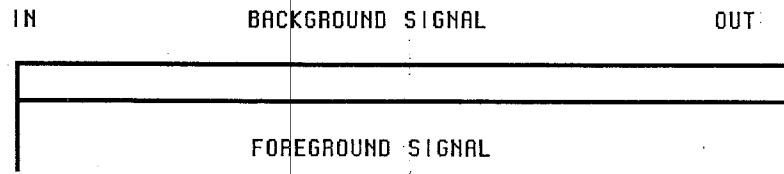
The above event is a key out with no out point established for the foreground
signal (it stays on through the entire event).

```
    IN              BACKGROUND SIGNAL           OUT
```

```
                  FOREGROUND SIGNAL
```
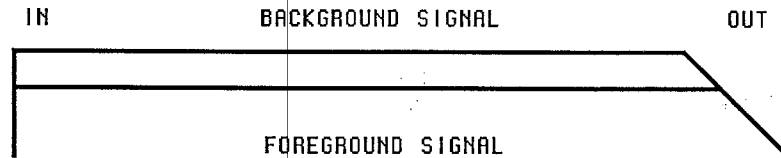
The above event is a key out with fade on. Both foreground and background
fade to black together.

SPLIT EDITS

A split edit is a cut in which the starting points of the audio and video portions
of the signal are different—"split apart", as it were. For instance, the event
could start as a video-only cut, with the audio then being brought in after a
delay, or visa-versa.

Looking at a diagram of a split edit, and using as an example a delay in the
video of 30 frames, here is how one would appear, looking at a completed
split as it would be on the edited master tape:

```
                         PREVIOUS OUT
                           POINT              <——TAPE TRAVEL
                             ↓

        PREVIOUS                         NEW EVENT
         EVENT              30
                          <FR.>
                            ^      ^                        ^
                    NEW       NEW                         OUT
              AUDIO IN POINT  VIDEO IN POINT
```
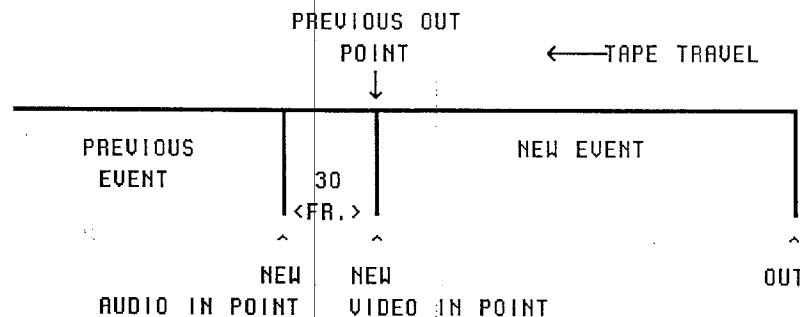
In the example, the new audio is being introduced 30 frames before the new video, and starts 30 frames before the end of the previous event. The in point for the event is considered to be the audio in point, since that's where the new recording begins. The video is delayed by 30 frames, or in other words, one second after the audio recording has begun (which, in the example, corresponds to the previous audio/video out point).

In order to make a split edit work properly, therefore, it's necessary to "back into" the previous edit by the amount of the delay of either the video or audio. The procedures for setting up a split edit are:

1. Determine and set the amount of the delay of either the audio or video necessary to achieve the desired effect.

2. Trim the record in time back (earlier) by the amount of the delay.

3. Establish a source in time for the first element (audio or video) that will be used.

4. Establish an out point for the edit as normal (either for the source or the record VTR.

Perhaps an example will help understand the process.

The previous scene ended in an office, with a shot of a character mulling over a phone conversation. The next scene will take place on a noisy city street. You decide to "sneak up" the street sounds one second before cutting to the shot of the street scene.

The record out point for the previous event was 1:13:12:24, and the first audio frame of the street scene is 3:48:18:02 on the source tape.

Since you've decided on an even number of 30 frames, the job is easy:

1. Trim the record in point (which the computer updated from the old record out point when the previous event was recorded) back by -30 frames, resulting in anew record in point of 1:13:11:24. This is where the new audio will start. Clear the record out point.

2. Enter the source in time for the start of the audio, which in this case will be 3:48:18:02.

3. Establish a split edit, delaying the video by 30 frames. This tells the computer to start the video 30 frames after the audio, at a source in time of

3:48:19:02 (the first visual frame), and at 1:13:12:24 on the edited master tape (the previous record out point).

4. Establish an out point, and record the event.

For a polished transition, if you had recorded the audio for the previous event on channel one only, you would have potted it down during the last 30 frames of the previous edit, and then made the split edit using channel two only, potting it up during the first 30 frames. This would result in a cross-fade of the old and new audios (and would require a mix of the two channels when copies were made).

A minor note of encouragement: split edits can be confusing at first, at least until you have made a few of them. With experience, you'll learn to let the computer do the actual figuring for you, using the ability to transfer edit points on the screen—especially the ability to trim by duration. The constant registers can also be helpful.

OTHER FACTORS IN DESCRIBING THE EVENT
TO THE COMPUTER

The balance of the information the computer needs is fairly simple to under-stand—the real trick to computer editing is learning to use time code numbers to tell the computer where edits begin and end, and what sources to use within each event. These factors have been covered above, and will become clearer in the sample editing session that follows (the results of which comprise one of the sample edit lists to be found on the Edit Lister System Master disk—the list with the file name SAMPLE1, which is identical save for the inclusion of notes in the sample list file).

In addition to the in and out points, the computer will need to know what the edit mode is (the audio/video combinations), and what the source VTR reel numbers are. This brings us to the question of how the computer updates the edit display after each edit.

EDIT UPDATING

Edit Type and In/Out Point

After each event is recorded, the computer automatically resets the edit type to CUT, no matter what type of edit the previous event entailed.

The record in point is made equal to the previous record out point, whether it was one you entered, or one that the computer figured by adding the total source duration or durations to the record in point.

With VTR sources, the in points are made equal to the old out points, except for "from" source out points in dissolves and wipes. These are made equal to the "from" source in point plus the total edit duration. This is done to keep iso tapes in sync after each event is recorded.

With either AUX or BLACK as the source, both in and out points are erased, since there are no actual time codes for these sources.

Edit Mode, Reel Numbers & the Constant Registers

The edit mode is not affected by recording an event, and stays as set until you change it. It's thus important to remember to change it back to audio/video, for instance, after recording a video-only insert. This is especially true when entering a list at the keyboard, since a mistake will not be apparent until you start performing the on-line auto assembly.

The source VTR reel numbers are not changed when an event is recorded. Again, it's important to remember to change them when a new reel is used, especially if the time code hours don't correspond to the reel numbers (a common practice when recording time code that make catching such errors much easier).

Finally, the constant registers are not affected by recording an event.

And So...

We now move on to the sample editing session. Many users will be working with an off-line time code system that automatically transmits edits to the computer via Edit Lister's E-Link functions. For purposes of demonstration and training, however, we will not assume that this is the case.

What we've done is postulate a session involving the building of a list, using cassette window dub copies of the master tapes (copies with the time code visually inserted into the video). The session covers the building of an edit decision list for an imaginary 30-second commercial containing a total of 12 events, 10 of which are the commercial itself.

The sample session is necessarily a bit contrived, since we're providing an example that incorporates each of the types of edits discussed above. Few real-life commercials incorporate every type of edit possible.

The list is designed for on-line auto assembly on a CMX-type system using two source VTRs, a title camera, and uses two original source reels, one of which has been copied over onto a B-roll.

We invite you to follow along and record the events in sequence. When you're done, compare a printout of your list to the SAMPLE1 list on the Edit Lister disk. If all goes well, they'll be identical, except for the notes in the sample list.

TUTORIAL

In the sample edit session that follows, you will build an edit decision list for an imaginary 30-second commercial. Our imaginary commercial (for Edit Lister, of course) will use a pre-recorded announcer's voice-over, along with natural (sync) sound from the source tapes. This will require a mix down to mono when the spot dubbing masters are made, since it's a bad practice to ask tape duplication operators to do mixing while making distribution dubs.

The original material consists of two reels—numbers 1 and 2—plus a reel of worktape containing the audio transfer—reel number 99. Since dissolves between scenes on reel one will be necessary, there is also a B-roll of reel 1—reel number 1B.

SPOT SYNOPSIS

In order to give at least some air of reality to the process of building the edit list, it's helpful to have an image in mind of what the spot would look like, so here's a synopsis of the spot:

The spot opens as the announcer describes what off-line editing was like before Edit Lister—slow, tedious and just plain awful. As he speaks, we dissolve between three scenes of editors working, writing on log forms, erasing mistakes, furiously stabbing at pocket calculators, and laboriously entering edits on an on-line system keyboard.

The announcer then introduces Edit Lister, and with a soft vertical wipe, we make the transition to scenes of editors working with the Edit Lister. These are obviously happy people, and we see them in a series of cuts—one of which is a split edit. One second into the third-from-last scene, the title and tag line appear: "Edit Lister—Bringing on-line power to off-line editing." The title and tag line stay on over the last three scenes, and then the entire picture fades to black.

The spot incorporates all of the major types and modes of events, and allows us to make some changes as we work.

GETTING STARTED

If the operating system and command file have been transferred to the Edit Lister System Master disk, the system may be started by placing the System Master disk in the A drive and the Sample Edit Files disk in the B drive, and then turning the computer on, or if the computer is already on, by pressing CTRL / ALT / DEL. (If the operating system has not been transferred, see page 1–1).

The A drive will come on, and after a moment the title screen will appear. After a brief pause, the main Edit Lister display will appear, and the system will ask for the following information:

    TITLE:

The title you enter would commonly include the production number, name of the spot, how many there are and the length of the spot, and the date on which the list was assembled. Up to 73 characters are allowed. Follow the example below, or enter your own title, and then press ENTER.

    TITLE: 4651-034 "EDIT LISTER" 1 X :30

The system will next ask for first the A-VTR reel number, and then the B-VTR, C-VTR and D-VTR reel numbers, as in the example below. You'll set up reel 1 on the A-VTR, 1B on the B-VTR, 2 on the C-VTR and reel 99 on the C-VTR:

    A-VTR REEL = 1

(and then):

    B-VTR REEL = 1B

(and then)

    C-VTR REEL = 2

(and then)

    D-VTR REEL = 99

The system will next ask how you want the list sorted.

    SORT BY RECORD IN, OK?

This is the normal sort mode used (the alternates being by event number or with the sort function turned off, meaning that events will be entered into the list sequentially), so you can simply press ENTER to accept the mode setting.

Finally, the system will ask for a program starting time code number. Our spot will actually start at 1:00:00:00, so you'd enter that at the prompt:

```
PROGRAM START = 1000000
```

When you've entered the preliminary information, the display will appear as follows:

```
                    4651-034  "EDIT LISTER"  1 X :30
 U/A1/A2                     ─IN──────────OUT────────DURATION────
              RECORD                                    (N)

              A-0001                                    (N)
 CUT - X      B-0001B                                   (N)
              C-0002                                    (N)
              D-0099                                    (N)
              AUX
 SORT REC-IN  BLACK
 EVENT * 001                                CO=  00:00:00:00


              NO LIST IN MEMORY
```

The system assumes that the first thing you're going to record will be colorbars and test tone, so it makes AUX the selected source when you start up. Since this is the case, you'll start by entering an out point for the AUX source. The straightforward way to do this would be to press F2 or "O" to set an out point (the AUX and BLACK sources normally use 00:00:00:00 as the in point, and the system will take care of this for you). To enter an out point of one minute in time code, you'd press F2 or "O", and the system would respond with:

```
        SET OUT:
```

You'd type in the time code number, and then press ENTER:

```
        SET OUT: 1:00:00
```

You don't have to enter the leading zeros, but that still leaves us with seven keystrokes. A still faster way would be to enter:

```
        SET OUT: 10000
```

In a Set operation, the system assumes you're entering time code, so the colons aren't necessary. You're now down to five key strokes, but you can beat that. Rather than pressing F2 or "O" to set an out point, you can press CTRL-D (hold down CTRL while pressing "D"), and then enter the number of frames, followed by ENTER:

```
SET DURATION: 1800
```

You're now down to four keystrokes, while achieving the same result.

```
                    4651-034  "EDIT LISTER"  1 X :30
  V/A1/A2       ┌──────IN───────OUT────DURATION──────────────────┐
                │ RECORD                            (N)           │
                │                                                 │
                │ A-0001                            (N)           │
  CUT - X       │ B-0001B                           (N)           │
                │ C-0002                            (N)           │
                │ D-0099                            (N)           │
                │ AUX       00:00:00:00   00:01:00:00  1:00:00    │
  SORT REC-IN   │ BLACK                             CO= 00:00:00:00│
  EVENT # 001   └─────────────────────────────────────────────────┘

                HO LIST IN MEMORY
```

You'd now enter a record in time code. To do this, first press "R" to highlight and thereby activate the RECORD channel. Any time code entries or changes would now affect only the record VTR. This time, you'll set an in point for the R-VTR by pressing F1 or "I", which will cause the system to respond with:

```
SET IN:
```

Tapes that are blacked and time coded in preparation for editing are commonly recorded with time code starting at 00:58:00:00. This leaves two minutes at the start of the tape to get away from the first few feet and its dropouts, and leave space for colorbars, tone and slate before the program starts at 01:00:00:00. You'll use this space for just this purpose, so you'll set a record in point as follows:

```
SET IN: 583000
```

The bars and tone will thus run from 00:58:30:00 to 00:59:30:00 on the edited master tape.

You don't need to enter a record out point, since you've already established an out point for the AUX source. If you did enter a record out point, and its

duration was the same as the source duration, the system would record them as entered. If the durations were different, however, when you recorded the event, the record VTR's duration would take precedence, and the source duration and out point would be altered.

```
                    4651-034  "EDIT LISTER"  1 X :30
U/A1/A2                     ─IN──────OUT──────DURATION─
              RECORD    00:58:30:00                        (N)

              A-0001                                       (N)
CUT - X       B-0001B                                      (N)
              C-0002                                       (N)
              D-0099                                       (N)
              AUX       00:00:00:00   00:01:00:00    1:00:00
SORT REC-IN   BLACK                                  CO=  00:00:00:00
EVENT * 001


              NO LIST IN MEMORY
```

The edit mode calls for both of the audio channels and video, which is what you want, and the event is now ready to be recorded. Do so by pressing CTRL-Q (hold down CTRL while pressing "Q"). Several things will happen, seemingly all at once: the system will update the record in time, making it equal to the previous out time; it will update the event number to # 2; and it will display the event you've just recorded as the first event in the list.

```
                    4651-034  "EDIT LISTER"  1 X :30
U/A1/A2                     ─IN──────────OUT──────DURATION─
              RECORD    00:59:30:00   00:59:30:00          (N)

              A-0001                                       (N)
CUT - X       B-0001B                                      (N)
              C-0002                                       (N)
              D-0099                                       (N)
              AUX
SORT REC-IN   BLACK                                  CO=  00:00:00:00
EVENT * 002

   001   AX  AA/V  C       00:00:00:00  00:01:00:00  00:58:30:00  00:59:30:00
```

The event line in the list shows all of the essential information about event # 1. From left to right: the event number (001); the source for the event (AX); the edit mode (AA/V); the edit type (C, for cut); and then four numbers, being the source in and out points, and then the record in and out points.

And thus do we now have the first event in our edit list.

The next thing you'll record will be the slate for the commercial. This provides information for the tape operators who will be running the spot, and normally includes such information as the agency, the product, the spot's title and number, the length, perhaps air dates, and often the production company's name and/or logo.   You'll record 20 seconds of slate, directly after the colorbars.

Slates are usually created with a character generator or a title camera, and thus are also taken from AUX (obviously, the switcher settings will have to be changed during the on-line edit).

The system has set AUX as the active channel, since it was the last one used. Since AUX is already the selected source, you can go ahead and establish an out point for it.

This event can be set up with a total of five keystrokes: CTRL-D, "600" (600 frames is 20 seconds) and ENTER. When you press CTRL-D, the system will prompt:

> SET DURATION:

You enter "600", and press ENTER. The edit display will then appear like this:

```
                    4651-034  "EDIT LISTER"  1 X :30
 V/A1/A2    ┌──────────────IN──────────OUT─────────DURATION──────────┐
            │ RECORD    00:59:30:00   00:59:30:00           (N)       │
            │                                                         │
            │ A-0001                                        (N)       │
 CUT - X    │ B-0001B                                       (N)       │
            │ C-0002                                        (N)       │
            │ D-0099                                        (N)       │
            │ AUX       00:00:00:00   00:00:20:00    20:00            │
 SORT REC-IN│ BLACK                                         CO= 00:00:00:00 │
 EVENT * 002└─────────────────────────────────────────────────────────┘

    001   AX  AA/V  C          00:00:00:00  00:01:00:00 │ 00:58:30:00  00:59:30:00
```

Again, since AUX is a switcher (non-time code) source, in doesn't require an in time code number. Press CTRL-Q to record the event, and when the system has completed its chores, it will update the screen as shown on the next page.

```
                    4651-034   "EDIT LISTER"  1 X :30
 V/A1/A2  ┌──────────────IN─────────OUT───────DURATION──────
          │ RECORD    00:59:50:00   00:59:50:00              (N)
          │
          │ A-0001                                           (N)
 CUT - X  │ B-0001B                                          (N)
          │ C-0002                              .            (N)
          │ D-0099                                           (N)
          │ AUX
 SORT REC-IN│ BLACK                                    CO=  00:00:00:00
 EVENT # 003└─────────────────────────────────────────────────

   001   AX   AA/V   C    00:00:00:00  00:01:00:00  00:58:30:00  00:59:30:00
   002   AX   AA/V   C    00:00:00:00  00:00:20:00  00:59:30:00  00:59:50:00
```

Time Out for Some Comments

You'll notice that when the system updates the record in point, it doesn't erase the record out point. Any time an out point is equal to or less than an in point, the system ignores it, so unless we make use of it, it's as if it wasn't there. Right now you're probably asking yourself how we might make use of it... some possibilities will be presented as we get further into the session.

Something else that's worth noting is that in the two right-most columns of time code numbers in the list, the record out point for event number 1 is the same as the record in point for event number 2. This characterizes what is known as a "clean list". If, on the other hand, event number 1 had gone to 00:59:45:00, and then event number 2 began as it does at 00:59:30:00, that would be a "dirty list", because of the overlap of the two events.

When the on-line system performed the auto assembly, it would record the bars and tone from 00:58:30:00 to 00:59:45:00, and then come back to record the slate from 00:59:30:00 to 00:59:50:00, covering the last 15 seconds of event number 1. In our example this would do no real damage, aside from wasting 15 seconds of editing time (or roughly $1.50 at the average rate for a one-inch suite).

It's now time to lay down the announcer's voice track, to which you'll cut the commercial. By looking at the window dub (the copy with visual time code numbers) cassette of the original material, you find that the voice track you want to use was recorded starting at 01:19:28:22, and runs exactly 30 seconds, to 01:19:58:22. (In real life, most spots shoot for a total time of 29 seconds, 15 frames—if not 29 seconds even—to avoid the possibility of having the opening or close cut off by the station.) Voice tracks are commonly laid down on tape with black video and the time code inserted visually—a window dub of the audio.

The first step in setting up the next event would be to set the record in point. Since it's already within ten seconds of where we want it, the fastest way to make it read 01:00:00:00—the starting time code for the spot—would be to trim it by 10 seconds. As you may have guessed, you'll save some keystrokes here, as well.

Press "R" to select the R-VTR channel, and press F3 to tell the system you want to trim the record in time code number. The system will respond with:

TRIM IN:

Since a trim value can be entered either in frames or time code format, the system will examine the entry to see if it includes any colons. If so, the entry is understood to be in time code; if not, it is assumed to be in frames.

In time code format, you would make the following entry, followed by ENTER (five entry keystrokes):

TRIM IN: 10:00

The faster way to trim by 10 seconds would be (three entry keystrokes):

TRIM IN: 300

You'd then press "D" to select the D-VTR, making it the active channel, and set the in and out edit points. In this case, since you know ahead of time that the duration is exactly 30 seconds (or 900 frames), you could set the in point and then set a duration of 900 frames. In most cases, however, such an easy-to-spot duration won't be the case, so you'd set both the in and out points. The edit display should now appear like this:

```
                      4651-034   "EDIT LISTER"   1 X :30
 V/A1/A2            ————IN————    ————OUT————   ——DURATION——
           RECORD    01:00:00:00   00:59:50:00              (N)

           A-0001                                           (N)
 CUT - D   B-0001B                                          (N)
           C-0002                                           (N)
           D-0099    01:19:28:22   01:19:58:22    30:00     (N)
           AUX
 SORT REC-IN  BLACK                                 CO=  00:00:00:00
 EVENT * 003

   001   AX   AA/V   C        00:00:00:00   00:01:00:00   00:58:30:00   00:59:30:00
   002   AX   AA/V   C        00:00:00:00   00:00:20:00   00:59:30:00   00:59:50:00
```

Note again that the record out point is less than the in point, and will thus be ignored. You could clear it, if you like, by selecting the R-VTR and setting an out point of zero, which would clear the displayed out point.

One final step remains in setting up the event: since this is an audio-only edit, you need to change the edit mode. Since you'll be using one channel for the announcer V.O., and the other for sync sound, you'll need to select an audio channel. Let's use channel one for the voice over, and channel two later on for the sync sound.

Press "=" (the equals key) to turn audio channel 2 off, and then "0" to turn the video channel off. The edit is now ready to record, and appears as follows:

```
                    4651-034  "EDIT LISTER"  1 X :30
  A1 Only      ┌──────────────IN──────────OUT──────DURATION──────────────┐
               │  RECORD    01:00 00:00   00:59:50:00            (N)      │
               │                                                          │
               │  A-0001                                        (N)       │
  CUT - D      │  B-0001B                                       (N)       │
               │  C-0002                                        (N)       │
               │  D-0099   01:19:28:22   01:19:58:22    30:00   (N)       │
               │  AUX                                                     │
  SORT REC-IN  │  BLACK                                 CO=  00:00:00:00  │
  EVENT * 003  └──────────────────────────────────────────────────────────┘

    001   AX   AA/V   C      00:00:00:00  00:01:00:00  00:58:30:00  00:59:30:00
    002   AX   AA/V   C      00:00:00:00  00:00:20:00  00:59:30:00  00:59:50:00
```

After you've pressed CTRL-Q to record the event, the display will appear as follows:

```
                    4651-034  "EDIT LISTER"  1 X :30
  A1 Only      ┌──────────────IN──────────OUT──────DURATION──────────────┐
               │  RECORD    01:00:30:00   01:00:30:00           (N)       │
               │                                       30:00              │
               │  A-0001                                        (N)       │
  CUT - D      │  B-0001B                                       (N)       │
               │  C-0002                                        (N)       │
               │  D-0099   01:19:58:22   01:19:58:22            (N)       │
               │  AUX                                                     │
  SORT REC-IN  │  BLACK                                 CO=  00:00:00:00  │
  EVENT * 004  └──────────────────────────────────────────────────────────┘

    002   AX   AA/V   C      00:00:00:00  00:00:20:00  00:59:30:00  00:59:50:00
    003   099  A      C      01:19:28:22  01:19:58:22  01:00:00:00  01:00:30:00
```

Notice that the D-VTR in point is updated the same way as is done for the record VTR: the in and out points are made equal to the previous out point.

Note also that in the edit list at the bottom of the screen, the edit mode is shown as "A", rather than as "A1", as you might have expected. Some on-line systems may indeed show the mode as "A1", but a CMX system lists a channel 1-only mode as "A", since this conforms with the way an audio-only edit was shown before there were two audio channels available.

(In the "old" days, the edit modes were shown as "B" for both audio and video; "V" for video only—as now—and "A" for audio only.)

A new piece of information has also been added to the display, appearing in the DURATION column between the RECORD and A-VTR rows. This is the program duration, as defined by the highest record out time minus the program start time we established at the beginning of the session. (Since all of our subsequent edits will have lower record out times up until the last edit, this number will not change through the rest of the session.)

Notice also that the list display shows only events 2 and 3. Whenever an event is recorded from the keyboard, Edit Lister re-displays the list starting one event before the one just recorded.

The list now includes the announcer's voice-over, and you're ready to start building the video portion of the list. The first step is to change the edit mode from audio 1 only to audio 2 and video. To do this, first press "0" (zero) to turn on the video channel, followed by "–" to turn audio 1 off and "=" to turn audio 2 on.

The system will display "V/A2" in the edit mode area at the upper left of the screen. You're also now done with reel number 99, so you can select the A-VTR to start working with reel 1. To do this, press "A".

The next step is to establish the in point for the record VTR where the first video will be laid down. This is the same in point used for the audio edit in event # 3—01:00:00:00. There are several ways that you can establish this number:

1. You could enter the number directly, by selecting the R-VTR, and then setting the in point through a normal "set in" operation.

2. You could trim the record in point back by 30 seconds, by selecting the R-VTR, and then trimming minus either 30 seconds (-30:00) or in frames (-900).

3. You could use the "last marks" function to recall the last set of edit points.

Since you've already done some setting and trimming, let's play with the last marks function. Type "$" (shift/4), and the system will recall the last set of edit points. The record VTR now shows the previous in point of 01:00:00:00, which is what you want. The mark reset, however, also recalled the D-VTR in and out points. While you could clear these by selecting the D-VTR and setting in and out points of zero, there's really no need to do this; you'll be working with the A, B and C VTRs from here on out, and the D-VTR points will be ignored.

```
                    4651-034   "EDIT LISTER"   1 X :30
   U/A2            ┌─────────IN ──────── OUT ───────DURATION──────────────┐
                   │ RECORD    01:00:00:00   00:59:50:00                (N) │
                   │                                            30:00        │
                   │ A-0001                                              (N) │
   CUT - D         │ B-0001B                                             (N) │
                   │ C-0002                                              (N) │
                   │ D-0099    01:19:28:22   01:19:58:22        30:00    (N) │
                   │ AUX                                                     │
   SORT REC-IN     │ BLACK                                      CO=  00:00:00:00 │
   EVENT * 004     └─────────────────────────────────────────────────────┘

    002    AX    AA/V    C        00:00:00:00   00:00:20:00   00:59:30:00   00:59:50:00
    003    099   A       C        01:19:28:22   01:19:58:22   01:00:00:00   01:00:30:00
```

The screen should now appear as in the above example. You're now ready to enter the in and out points for the first video scene. At this point, we should stop for a moment to examine some procedures.

Building a List During a Rough Edit Session

If you're actually doing a rough-cut on cassette while building your list, what you would do is extend the scene beyond your out point on the rough edited master, leaving an overcut that you'll partially cover over later when you came back to make the subsequent edit. This leaves you some extra material in case you need to make an adjustment.

You could enter the in point into the system before making the edit on tape, but would not enter the out point until you have made the next edit. This is because the exact time code number for the end of one edit on a rough edited master is determined by the start of the next edit. Since all of the time code numbers for video edits are visible on the tape, you could even hold off on entering them into the system until the entire rough cut is completed.

Audio only edits, on the other hand, will require special treatment. These should be made on the actual rough edited master as audio and video edits, so

that the time code numbers in the window can be noted and entered into the system before they are covered over with video.

Obviously, when doing a rough cut on a cuts-only system, any dissolves or other effects will appear in the rough edit as straight cuts. In the list you're building, though, they can be whatever you want.

And Back to the Edit Session...

You want to start with a fade up from black, and find that the in point for the scene is at time code address 01:08:24:14, allowing for a 20-frame (2/3 second) fade up. The out point is at 01:08:28:07, at which point you'll dissolve to the next scene.

It's important to remember to always add one frame to the out point determined by examining a window dub, since the out point shown in the list defines the first frame not recorded following the edit. If the actual out point as determined by examining the last visible frame number in the rough cut is indeed 01:08:28:07, then the out point entered into the list should be 01:08:28:08.

Make sure the A-VTR has been selected, and enter the in and out points, using the normal set in/set out procedures (F1 or "I" for SET IN, F2 or "O" for SET OUT). Remember that you needn't enter the leading zero in the time code numbers, nor the colons. The screen should now appear like this:

```
                    4651-034   "EDIT LISTER"   1 X :30
 V/A2          ┌────────── IN ────────── OUT ──────── DURATION ─────────┐
               │ RECORD    01:00:00:00    00:59:50:00              (H)   │
               │                                        30:00            │
               │ A-0001    01:08:24:14    01:08:28:08     3:24    (H)    │
 CUT - A       │ B-0001B                                          (H)    │
               │ C-0002                                           (H)    │
      .        │ D-0099    01:19:28:22    01:19:58:22   30:00     (H)    │
               │ AUX                                                     │
 SORT REC-IN   │ BLACK                                            CO=  00:00:00:00 │
 EVENT * 004   └──────────────────────────────────────────────────────┘

   002   AX   AA/V   C        00:00:00:00   00:00:20:00   00:59:30:00   00:59:50:00
   003   099   A     C        01:19:28:22   01:19:58:22   01:00:00:00   01:00:30:00
```

The final step is to make the event a fade up from black. This is done by dissolving from black to the A-VTR, with no duration established for the black channel. In other words, the edit will start in black, and then immediately dissolve to the A-VTR signal.

To set up the dissolve, press F7, and the system will ask:

DISSOLVE FROM: D

The system will offer the D VTR as the default, since it was the last one used, but in this case you don't want to use the default channel. Press "L", which stands for black. (As mentioned in the operation section of this manual, "L" was chosen to avoid confusion with the B-VTR, and goes back to the early CMX systems.) The system will now display:

DISSOLVE FROM: L   TO:

Press "A", and the system will ask:

DISSOLVE FROM: L   TO: A
DURATION:

Enter "20", press return, and the display will appear as follows:

```
                    4651-034   "EDIT LISTER"   1 X :30
U/A2                  ─ IN ────── OUT ────DURATION──
                RECORD   01:00:00:00   00:59:50:00              (N)
                                                       30:00
                A-0001   01:08:24:14   01:08:28:08      3:24    (N)
DISSOLVE        B-0001B                                         (N)
L TO A   20     C-0002                                          (N)
                D-0099   01:19:28:22   01:19:58:22     30:00    (N)
                AUX
SORT REC-IN     BLACK                                   CO=   00:00:00:00
EVENT * 004

   002   AX   AA/V   C        00:00:00:00   00:00:20:00   00:59:30:00   00:59:50:00
   003   099  A      C        01:19:28:22   01:19:58:22   01:00:00:00   01:00:30:00
```

Since black is an auxiliary source it does not need an in point, and since the dissolve is an immediate transition (as opposed to a delayed dissolve), no out point is needed to establish a duration for black. (Also remember that the D-VTR edit points have no bearing on the event you're about to record.)

The event is ready to be recorded, so press CTRL-Q, and the system will record the event, display the recorded event in the list, and update the display. When it's done, the display should appear as shown on the next page:

```
                    4651-034   "EDIT LISTER"   1 X :30
  V/A2                   ――― IN ――――― OUT ――― DURATION ―――
                 RECORD    01:00:03:24   01:00:03:24           (N)
                                                        30:00
                 A-0001    01:08:28:08   01:08:28:08           (N)
  CUT - A        B-0001B                                       (N)
                 C-0002                                        (N)
                 D-0099    01:19:28:22   01:19:58:22   30:00   (N)
                 AUX
  SORT REC-IN    BLACK                                        CO=  00:00:00:00
  EVENT * 005

     003   099   A      C          01:19:28:22  01:19:58:22   01:00:00:00  01:00:30:00
     004   BL    A2/V   C          00:00:00:00  00:00:00:00   01:00:00:00  01:00:00:00
     004   001   A2/V   D    020   01:08:24:14  01:08:28:08   01:00:00:00  01:00:03:24
```

Already things are getting more interesting. Notice that event number four takes up two lines in the list display. Let's take a moment to take a look at the information contained in those two lines.

Line one starts with the event number (004). The "from" source is black (BL), and the edit mode is audio 2 and video (A2/V). The surprise comes with the edit type, which is shown as a cut in the first line (C). Actually, this is quite true, since the event starts with a cut to black. Since what was already on the tape at the record in point was black, the edit is invisible.

The first and second time code numbers are those for the black signal. Since black has no time code, it automatically uses 00:00:00:00, and since there was no duration in black, it uses the same number for the out point. On the record side—the third and fourth numbers—the same numbers—01:00:00:00—are used for the in and out points for the "from" part of the dissolve. This indicates an immediate dissolve to the "to" source.

The first line of a dissolve (or a wipe) in the display or printout of an edit list is thus concerned with the "from" source. As you might suspect, the second line is concerned with the information on the "to" source, and its position on the record tape.

The second line for event 4 also shows the event number (004), followed by the "to" source—a tape reel (001) in this case—and the edit mode (A2/V). Next is the indication that the event is a dissolve (D), followed by the dissolve rate (020). We then have the in and out time codes for the "to" source, followed by the in and out time codes for the record tape.

Stand Back! We're Going to Make a Match-Frame Edit!

You're now ready to make the next edit—a dissolve to the second video scene.
This will require making a match-frame edit—picking up exactly where the
last event left off on both the source and record VTRs, and then dissolving to
the new scene.

Some on-line editing systems have what is known as a "look-ahead" feature,
which means that the system will analyze the list to see if it can perform a
series of events in a single pass of the record tape. In the instance of events
number 4 and 5 in our list (5 being the one you're about to record), such a
system would conclude that recording both events in a single pass would be
possible. Going from black to one tape source and then another tape source is
no problem, and the system would tie events 4 and 5 together and do them
both at once.

The problem with single-pass executions of multiple events comes when the
system must dissolve from one VTR to another VTR, and then back to the first
VTR. The first dissolve, say, from the A-VTR to the B-VTR, presents no
problem. The next dissolve, however, could be from the B-VTR back to the
A-VTR, and this could present a problem.

If the scene from the B-VTR is long enough that the tape on the A-VTR can
be cued to its new position before it's needed, then the system will release the
A-VTR as soon as it is no longer being used in the effect transition, and will
send it in fast forward or rewind to its next scene. If the scene on the B-VTR
is very short, however, or if the next scene on the A-VTR is a long way off (or
even worse, on another tape), then there won't be time to get the next scene
cued before it's needed.

The system logic necessary to perform the look-ahead function is rather
impressive and, alas, not infallible. The system doesn't know, for instance,
about break or changes in time code on a tape.

It's for this reason that most editing systems are designed to allow a single
dissolve or wipe or key within each event, and start and end each event with a
cut. This is the way the Edit Lister works, as do the CMX and other systems
that follow CMX logic. If the on-line system you will use to assemble your
programs has look-ahead, however, you will save some time in the on-line
editing suite.

In our case, the next edit is a dissolve to another scene on reel number 1, and since a dissolve must be made between two different tapes, this is where the B-roll of reel 1 comes in. A B-roll is an exact copy of a tape, made for just this purpose.

You examine your rough cut tape, and find that the in point for the new scene is 1:13:08:16, and the out point (with the extra frame added) is 01:13:11:10. Select the B-VTR, and enter those time codes as its in and out points. Then tell the system that you want to dissolve from the A-VTR to the B-VTR, at a rate of 15 frames. (Press F7, then ENTER—thus telling the system to use the default channel of "A" that it offered you—then "B"—to over-ride the default of "L" that it offered you—then type "15", and press ENTER.) The screen should appear like this:

```
                    4651-034   "EDIT LISTER"   1 X :30
  V/A2          ──────── IN ──────── OUT ────────DURATION────────────────
              RECORD    01:00:03:24   01:00:03:24                  (N)
                                                          30:00
              A-0001    01:08:28:08   01:08:28:08                  (N)
  DISSOLVE    B-0001B   01:13:08:16   01:13:11:10          2:24    (N)
  A TO B  15  C-0002                                               (N)
              D-0099    01:19:28:22   01:19:58:22         30:00    (N)
              AUX
  SORT REC-IN BLACK                                                CO=   00:00:00:00
  EVENT * 005


   003   099   A     C              01:19:28:22   01:19:58:22   01:00:00:00   01:00:30:00
   004   BL    A2/V  C              00:00:00:00   00:00:00:00   01:00:00:00   01:00:00:00
   004   001   A2/V  D        020   01:08:24:14   01:08:28:08   01:00:00:00   01:00:03:24
```

The system has speeded your work considerably by updating the record and A-VTR in points: the new in points are the previous out points, and you therefore don't have to bother with them. The event is now ready to be recorded, which you'll do by pressing CTRL-Q. The system records the event, enters the event into the list display, and updates the active edit area. The resulting display will appear as shown at the top of the next page.

```
                      4651-034   "EDIT LISTER"  1 X :30
                            ── IN ─────── OUT ───── ─DURATION───
    V/A2                                                          (N)
            RECORD    01:00:06:18    01:00:06:18
                                                      30:00
            A-0001    01:08:31:02    01:08:31:02         (N)
    CUT - B B-0001B   01:13:11:10    01:13:11:10         (N)
            C-0002                                       (N)
            D-0099    01:19:28:22    01:19:58:22  30:00  (N)
            AUX
                                                     CO=  00:00:00:00
    SORT REC-IN BLACK
    EVENT # 006

        004   BL   A2/V  C       00:00:00:00  00:00:00:00  01:00:00:00  01:00:00:00
        004   001  A2/V  D   020 01:08:24:14  01:08:28:08  01:00:00:00  01:00:03:24
        005   001  A2/V  C       01:08:28:08  01:08:28:08  01:00:03:24  01:00:03:24
        005   001B A2/V  D   015 01:13:08:16  01:13:11:10  01:00:03:24  01:00:06:18
```

Notice that in the list display of event number 5, the in and out points for both the source and record VTRs are the same as their respective out points in event number 4. This is how you can spot a match-frame edit in any CMX-style edit decision list.

If the in points were the same as the previous out points, but the out points in the first line were higher than the in points, that would indicate a delayed dissolve (the same would hold true for a wipe), meaning that the editor had decided to extend the previous scene before dissolve to the new scene.

The edit would start with a match-frame edit, but instead of making an immediate dissolve to the new scene, the system would continue the scene until the "from" out point was reached and then make the dissolve to the new scene. It would then continue to the "to" out point, where the event would end.

You have one more dissolve to perform, and it, too, will be a match-frame edit. Select VTR-A, and enter your new in and out points: set 01:34:58:20 for your in point, and 01:35:01:18 (adjusted) for your out point. Tell the system you want to dissolve from B to A at a rate of 15 frames (press F7, then ENTER twice, to accept the default channels, then type "15" and press ENTER).

The screen display should now appear as shown on the next page.

```
                    4651-034  "EDIT LISTER"  1 X :30
 V/A2               ───────── IN ────────── OUT ─────── DURATION──────────
                    RECORD    01:00:06:18   01:00:06:18               (H)
                                                          30:00
                    A-0001    01:34:58:20   01:35:01:18 .  2:28       (N)
 DISSOLVE           B-0001B   01:13:11:10   01:13:11:10               (N)
 B TO A   15        C-0002                                            (N)
                    D-0099    01:19:28:22   01:19:58:22   30:00       (N)
                    AUX
 SORT REC-IN        BLACK                                        CO=  00:00:00:00
 EVENT * 006


    004    BL   A2/V   C         00:00:00:00  00:00:00:00  01:00:00:00  01:00:00:00
    004   001   A2/V   D    020  01:08:24:14  01:08:28:08  01:00:00:00  01:00:03:24
    005   001   A2/V   C         01:08:28:08  01:08:28:08  01:00:03:24  01:00:03:24
    005  001B   A2/V   D    015  01:13:08:16  01:13:11:10  01:00:03:24  01:00:06:18
```

When you have recorded the event, the display will update, and will appear as follows:

```
                    4651-034  "EDIT LISTER"  1 X :30
 V/A2               ───────── IN ────────── OUT ─────── DURATION──────────
                    RECORD    01:00:09:16   01:00:09:16 .             (N)
                                                          30:00
                    A-0001    01:35:01:18   01:35:01:18               (N)
 CUT - A            B-0001B   01:13:11:10   01:13:11:10 .             (N)
                    C-0002                                            (N)
                    D-0099    01:19:28:22   01:19:58:22   30:00       (N)
                    AUX
 SORT REC-IN        BLACK                                        CO=  00:00:00:00
 EVENT * 007


    005   001   A2/V   C         01:08:28:08  01:08:28:08  01:00:03:24  01:00:03:24
    005  001B   A2/V   D    015  01:13:08:16  01:13:11:10  01:00:03:24  01:00:06:18
    006  001B   A2/V   C         01:13:11:10  01:13:11:10  01:00:06:18  01:00:06:18
    006   001   A2/V   D    015  01:34:58:20  01:35:01:18  01:00:06:18  01:00:09:16
```

At this point, you've completed the opening sequence of scenes that show how the life of an editor was dull and dingy before the introduction of Edit Lister, and you're ready to make the transition to the scenes showing how bright and shiny the world of editing can be. This transition will be made with a vertical wipe.

The new scenes—of editors using Edit Lister—are on reel # 2, so you should select the C-VTR. Press "C" to do so. The scene you want runs from time code address 02:13:14:28 to 02:13:17:26 (adjusted), so enter those numbers as the in and out points. Since the wipe starts as a match-frame edit, the A-VTR time codes are already good.

Now you need to tell the system that the upcoming transition will be a wipe. Press F8, and the system will then ask:

WIPE FROM: A

Press ENTER, to accept the A-VTR default, and the system will ask:

WIPE FROM: A   TO: B

Press "C", to over-ride the default and indicate the C-VTR, and the system will ask:

WIPE FROM: A   TO: C
  DURATION:

This will be a 20-frame wipe, so type "20", and press ENTER. The system will ask:

WIPE FROM: A   TO: C
  DURATION: 20   WIPE CODE:

This is the additional information pertaining to a wipe that the system will need. Let's assume that the vertical wipe pattern you want to use is wipe code number 2, so press "2" and then ENTER. (To reverse the direction of the wipe, you'd add 100 to the wipe code—e.g. 102. Check the wipe code chart for the on-line system you'll be using for details.) The display, before recording, will appear as follows:

```
                    4651-034   "EDIT LISTER"   1 X :30
  V/A2      ┌──────────── IN ──────────── OUT ──────────DURATION──────────┐
            │ RECORD    01:00:09:16    01:00:09:16                 (N)     │
            │                                            30:00             │
            │ A-0001    01:35:01:18    01:35:01:18              (N)        │
  WIPE  2   │ B-0001B   01:13:11:10    01:13:11:10              (N)        │
  A TO C  20│ C-0002    02:13:14:28    02:13:17:26        2:28  (N)        │
            │ D-0099    01:19:28:22    01:19:58:22       30:00  (N)        │
            │ AUX                                                          │
  SORT REC-IN│ BLACK                              :              CO= 00:00:00:00│
  EVENT # 007└──────────────────────────────────────────────────────────┘

   005   001   A2/U   C          01:08:28:08  01:08:28:08  01:00:03:24  01:00:03:24
   005   001B  A2/U   D     015  01:13:08:16  01:13:11:10  01:00:03:24  01:00:06:18
   006   001B  A2/U   C          01:13:11:10  01:13:11:10  01:00:06:18  01:00:06:18
   006   001   A2/U   D     015  01:34:58:20  01:35:01:18  01:00:06:18  01:00:09:16
```

After you have recorded the event, the screen will appear as follows:

```
                        4651-034   "EDIT LISTER"   1 X :30
    U/R2                 ─── IN ───────── OUT ──────DURATION──
             RECORD     01:00:12:14   01:00:12:14              (N)
                                                    30:00
             A-0001     01:35:04:16   01:35:04:16              (N)
    CUT - C  B-0001B    01:13:11:10   01:13:11:10              (N)
             C-0002     02:13:17:26   02:13:17:26    (N)
             D-0099     01:19:28:22   01:19:58:22    30:00     (N)
             AUX
    SORT REC-IN  BLACK                                CO=   00:00:00:00
    EVENT # 008

     006  001B  R2/U  C           01:13:11:10   01:13:11:10   01:00:06:18   01:00:06:18
     006  001   R2/U  D      015 01:34:58:20   01:35:01:18   01:00:06:18   01:00:09:16
     007  001   R2/U  C           01:35:01:18   01:35:01:18   01:00:09:16   01:00:09:16
     007  002   R2/U  U002   020 02:13:14:28   02:13:17:26   01:00:09:16   01:00:12:14
```

The next event, number 8, will be a cut. You find its in and out points on your rough cut are 02:35:04:06 and 02:35:09:00 (adjusted), from reel number 2. In making the edit on your rough cut, however, you decide that event number 7 actually ran 10 frames too long. You'll eventually need to change event number 7, but for the time being, let's let it be. Event 8, on the other hand, should be corrected now.

Select the R-VTR and trim its in point by -10 frames (press F3, then type "–10" and press ENTER). This brings you to one of the less-desirable aspects of the fact that the record out point is left in the display after an event is recorded. Since the record in and out points were equal after the last event, trimming the in point back by 10 frames results in a duration of 10 frames being established for the R-VTR. The out point must therefore be cleared or made equal to the new in point. There are four ways to do this:

1. Clear the out point by setting out zero (press F2 or "O", then type "0" and press ENTER).

2. Make the out point equal to the in point by transferring the in point time code to the out point (press F2 or "O", then F1 or "I", and press ENTER).

3. Make the out point equal to the in point by establishing a duration of zero (press "CTRL-D", then type "0" and press ENTER).

4. Trim the out point back by an equal –10 frames (press "T", then "O", then type "–10" and press ENTER).

As you have probably guessed from counting keystrokes, the first three are all likely candidates, while the fourth procedure involves far too many keystrokes to be efficient. The correct choice, however, would be the first, since if you were to need to make any further adjustments, you'd have to repeat the entire process. Clearing the out point eliminates the possibility of having to do this again.

(Incidentally, if event number 8 were a dissolve or a wipe and therefore began with a match frame dissolve, you'd also have to trim the in point for the "from" source by the same value that you trimmed from the record VTR, in order to maintain the match frame points. You'd also have to trim or clear the out point, as with the R-VTR.)

Once the R-VTR in point has been cleared as outlined above, select the C-VTR and enter its in and out points, if you haven't already done so.

Since this is a cut, you don't need to set the edit type, since the system automatically reset itself to cut when you recorded the last event. Event number 8 is now ready to be recorded, and the display should appear as follows:

```
                          4651-034   "EDIT LISTER"   1 X :30
 U/A2              ┌────────── IN ──┬────── OUT ──────┬DURATION──────────────┐
                   │ RECORD   01:00:12 13   01:00:12:14              (N)      │
                   │                                        30:00             │
                   │ A-0001   01:35:04 16   01:35:04:16             (N)       │
 CUT - C           │ B-0001B  01:13:11 10   01:13:11:10             (N)       │
                   │ C-0002   02:35:04 06   02:35:09:00       4:24  (N)       │
                   │ D-0099   01:19:28 22   01:19:58:22     30:00  (N)        │
                   │ AUX                                                      │
 SORT REC-IN       │ BLACK                                                    │
 EVENT * 008       │                                          CO=  00:00:00:00│
                   └──────────────────────────────────────────────────────────┘

   006   001B  A2/U   C          01:13:11:10   01:13:11:10   01:00:06:18   01:00:06:18
   006   001   A2/U   D      015  01:34:58:20   01:35:01:18   01:00:06:18   01:00:09:16
   007   001   A2/U   C          01:35:01:18   01:35:01:18   01:00:09:16   01:00:09:16
   007   002   A2/U   W002   020  02:13:14:28   02:13:17:26   01:00:09:16   01:00:12:14
```

After the event has been recorded, the display should then appear as shown at the top of the next page.

```
                        4651-034  "EDIT LISTER"  1 X :30
   V/A2          ─────────── IN ─────────── OUT ───────DURATION──────────
                RECORD    01:00:16:28   01:00:16:28              (N)
                                                       30:00
                A-0001    01:35:04:16   01:35:04:16              (N)
   CUT - C      B-0001B   01:13:11:10   01:13:11:10              (N)
                C-0002    02:35:09:00   02:35:09:00              (N)
                D-0099    01:19:28:22   01:19:58:22     30:00    (N)
                AUX
   SORT REC-IN  BLACK                                            CO=  00:00:00:00
   EVENT * 009

      007  001  A2/V  C          01:35:01:18  01:35:01:18  01:00:09:16  01:00:09:16
      007  002  A2/V  W002  020  02:13:14:28  02:13:17:26  01:00:09:16  01:00:12:14
      008  002  A2/V  C          02:35:04:06  02:35:09:00  01:00:12:04  01:00:16:28
```

For the next edit, you decide to start the audio early, before the end of the previous event (number 8). This will call for a split edit.

The first step is to find the point on the source tape (reel 2) where you want the audio to start, and then find the point where you want the video to start. By examining your window dub, you find that the audio should start at 02:17:20:12, and the video should start at 02:17:21:22.

Enter the audio starting number as the in point for the C-VTR, and enter the video starting number as the temporary out point for the C-VTR. The system will act as a calculator to show you what the length of the delay is—in this case, 1:10 (one second, ten frames, shown in the duration display as 1:10).

You now need to trim the record in point back into the previous event by this amount, and doing so is a proverbial "piece of cake". Simply select the R-VTR, and then trim its in point by minus the C-VTR duration (press F3, then type "-" (minus), then "C", then CTRL-D and press ENTER).

Once again you'll need to clear the record out point, to eliminate the false duration you established by trimming the record in point.

You can now set the actual out point for the C-VTR (where the audio and video will end together), by selecting the C-VTR and setting the adjusted out point—02:17:24:06. Then it's time to set up the split edit.

Press "S" to tell the system you want to make a split edit. The system will ask:

SPLIT A/V, DELAY WHICH?

Since you want to delay the video, press either "V" or "–" (hyphen), which is the "video only" key. The system will then ask:

VIDEO DELAY =

In this case, you could easily figure the delay value of 1:10 in your head as equal to 40 frames and enter the value in frames, but if the number were an odd amount this wouldn't be worth the trouble. To let the system know that you're entering an amount in time code format, enter "1:10" (or "110:"—the colon can be anywhere), and press ENTER. The display should appear as follows:

```
                     4651-034  "EDIT LISTER"  1 X :30
V/R2              ┌─────────── IN ──────────── OUT ──────────DURATION──────────────
DELAY V          │  RECORD     01:00:15:18                                    (N)
00:00:01:10      │                                                  30:00
                 │  A-0001     01:35:04:16     01:35:04:16              (N)
CUT - C          │  B-0001B    01:13:11:10     01:13:11:10              (N)
                 │  C-0002     02:17:20:12     02:17:24:06     3:24     (N)
                 │  D-0099     01:19:28:22     01:19:58:22    30:00     (N)
                 │  AUX
SORT REC-IN      │  BLACK                                             CO=   00:00:00:00
EVENT * 009      └─────────────────────────────────────────────────────────────────

  007   001   R2/V    C            01:35:01:18  01:35:01:18  01:00:09:16  01:00:09:16
  007   002   R2/V    W002   020   02:13:14:28  02:13:17:26  01:00:09:16  01:00:12:14
  008   002   R2/V    C            02:35:04:06  02:35:09:00  01:00:12:04  01:00:16:28
```

After recording, the display should appear as follows:

```
                     4651-034  "EDIT LISTER"  1 X :30
V/R2              ┌─────────── IN ──────────── OUT ──────────DURATION──────────────
                 │  RECORD     01:00:19:12     01:00:19:12              (N)
                 │                                                  30:00
                 │  A-0001     01:35:04:16     01:35:04:16              (N)
CUT - C          │  B-0001B    01:13:11:10     01:13:11:10              (N)
                 │  C-0002     02:17:24:06     02:17:24:06              (N)
                 │  D-0099     01:19:28:22     01:19:58:22    30:00     (N)
                 │  AUX
SORT REC-IN      │  BLACK                                             CO=   00:00:00:00
EVENT * 010      └─────────────────────────────────────────────────────────────────

  008   002   R2/V    C            02:35:04:06  02:35:09:00  01:00:12:04  01:00:16:28
  SPLIT: VIDEO DELAY= 00:00:01:10
  009   002   R2      C            02:17:20:12  02:17:24:06  01:00:15:18  01:00:19:12
  009   002   V       C            02:17:21:22  02:17:24:06  01:00:16:28  01:00:19:12
```

The format used to display a split edit in the list is rather interesting. While a split edit is a type of cut, it is listed on three lines: one for the split delay information, one for the first signal (in this case, the audio) and one for the second signal (in this case the video). The first line is presented only as a courtesy to us humans—the system can get all the information it needs from the second two lines of the listing.

Notice also that the record in time code for the audio is at a point back within the previous event, while the record in point for the video is the same as the previous record out point (the one for event number 8). Both sets of source and record out points are the same.

You're now approaching the closing sequence, which will include the title and tag line key. This will be introduced during the next event, which will be a delayed key, and kept on through the end of the event. This will be followed by two key out events, the last of which will have the fade function on, to fade everything to black at the end.

In examining your rough cut, you find that the starting time code for the next event on reel 2 is 02:46:12:24, and the adjusted out point is 02:46:17:06. Enter these numbers for the C-VTR, and you're then ready to set up the key.

To set up the key, start by pressing F6. The system will respond by asking:

        KEY, OK?

The system wants you to verify that this will be a Key In type of event, the alternative being a Key Out. The two alternate settings may be toggled (switched back and forth) by pressing "N" until you have the setting you want, at which time you accept the setting by pressing ENTER. In this case, the setting is correct, so simply press ENTER. The system will then ask:

        KEY, OK?   BACKGROUND:

In this case, the foreground (title key) will be keyed over the signal from the C-VTR, so press "C". The system will ask:

        KEY, OK?   BACKGROUND: C   FOREGROUND:

Since the title in this case will come from an auxiliary source (a title camera or a character generator), press "X". The system will ask:

        KEY, OK?   BACKGROUND: C   FOREGROUND: X
        DELAY:

The delay option allows you to delay the start of the foreground key after the start of the event, as opposed to having the key start dissolving on immediately. Pressing ENTER would enter no delay.

In this case, however, you want to delay the appearance of the foreground key by one second. The delay factor may be entered in either time code format or by frames—the use of a colon anywhere in the entry will indicate time code format to the system. Thus you could enter either "1:00" (or "100:"—the position of the colon doesn't matter), or "30", which is the preferred procedure (2 keystrokes vs. four keystrokes).

When you press ENTER, the system will then ask:

```
KEY, OK?        BACKGROUND: C   FOREGROUND: X
DELAY: 30                       DURATION:
```

This is the rate at which the foreground key will be dissolved on over the background scene. If the foreground were to be dissolved off during the background scene, this would also be the rate at which it would be dissolved off.

In this case, you'll use a rate of 15 frames (1/2 second), which must be entered in frames—the system will not accept a time code format entry. Before pressing ENTER, the display in the dialogue area would look like this:

```
KEY, OK?        BACKGROUND: C   FOREGROUND: X
DELAY: 30                       DURATION: 15
```

Since you entered a delay factor, the system skipped over the question regarding the fade option. You'll get a chance to see that in the upcoming events.

The title key is to stay up through the end of the event, since it's going to be extended into the next scene. Therefore, there is no need to enter an out point for the AUX channel in order to establish a duration for the foreground key. And, since you're dealing with a non-time code source, there's also no need to enter an in point for the AUX channel. The system will automatically use 00:00:00:00 as the in point (and the out point as well, to tell the on-line system to leave the key up through the end of the scene.

The display should appear as shown at the top of the next page before the event is recorded.

```
                    4651-034   "EDIT LISTER"   1 X :30
   V/A2    ──────────── IN ──────── OUT ──── DURATION ────
            RECORD     01:00:19:12   01:00:19:12           (N)
                                                    30:00
            A-0001     01:35:04:16   01:35:04:16           (N)
   KEY      B-0001B    01:13:11:10   01:13:11:10           (N)
   X OVR C  15  C-0002     02:46:12:24   02:46:17:06   4:12   (N)
   00:00:01:00  D-0099     01:19:28:22   01:19:58:22   30:00  (N)
            AUX
   SORT REC-IN  BLACK                                  CO=   00:00:00:00
   EVENT * 010

      008   002   A2/V   C          02:35:04:06   02:35:09:00   01:00:12:04   01:00:16:28
      SPLIT: VIDEO DELAY= 00:00:01:10
      009   002   A2     C          02:17:20:12   02:17:24:06   01:00:15:18   01:00:19:12
      009   002   V      C          02:17:21:22   02:17:24:06   01:00:16:28   01:00:19:12
```

Here's what the display should look like after the event is recorded:

```
                    4651-034   "EDIT LISTER"   1 X :30
   V/A2    ──────────── IN ──────── OUT ──── DURATION ────
            RECORD     01:00:23:24   01:00:23:24           (N)
                                                    30:00
            A-0001     01:35:04:16   01:35:04:16           (N)
   CUT - C  B-0001B    01:13:11:10   01:13:11:10           (N)
            C-0002     02:46:17:06   02:46:17:06           (N)
            D-0099     01:19:28:22   01:19:58:22   30:00   (N)
            AUX
   SORT REC-IN  BLACK                                  CO=   00:00:00:00
   EVENT * 011

      SPLIT: VIDEO DELAY= 00:00:01:10
      009   002   A2     C          02:17:20:12   02:17:24:06   01:00:15:18   01:00:19:12
      009   002   V      C          02:17:21:22   02:17:24:06   01:00:16:28   01:00:19:12
      010   002   A2/V   C          02:46:12:24   02:46:13:24   01:00:19:12   01:00:20:12
      010   002   A2/V   K B        02:46:13:24   02:46:17:06   01:00:20:12   01:00:23:24
      010   AX    A2/V   K    015   00:00:00:00   00:00:00:00   01:00:20:12   01:00:20:12
```

The key lines in the edit list display once again present something new and different. A delayed key takes up three lines in the list (whereas a non-delayed key or key out would take up only two lines, as we shall see presently).

The first line is shown as a cut, and represents the amount of time during which the background signal is used without the foreground signal. In a sense, a delayed key is comprised of what might be considered a "mini/partial look-ahead" combination of events. If the key delay function was not provided, you'd have to first make a cut, and then perform a match-frame edit

to introduce the foreground key. The key delay feature combines the cut and the key into a single event.

The second line shows the period during which the background signal is used in conjunction with the foreground key signal, and is shown as a key by the "K" to the right of the edit mode, and by the "B" that indicates that it is serving as the background.

The third line shows the starting and ending time code for the foreground signal—well, in a way. Notice that the in and out points for both the source and record tapes are the same on the third line. Again, this tells the system that there is no duration for the foreground signal, which means that it stays up through the end of the event.

If there were a duration of any sort—even one frame—the foreground would be dissolved on, would stay up until its out point was reached, and would then be dissolved off.

In establishing a foreground duration, it's important to make certain that the foreground duration plus the delay and the dissolve rate <u>do not</u> add up to a longer period than the background duration. The edit points in the list in such a case would be illegal, and would most likely result in an error in the on-line system, if it accepted it at all.

Notice also that in a delayed key, the final out point for both the background source and the record tape is shown on the second line in the list—not the third, as one might guess. When looking for the event out points, always remember to examine the background out point, and not the foreground out point, which is always on the last line of a key.

You're now ready for the next event, which will be a key out that extends the key from the previous scene into this one. By definition, a key out always starts with the foreground key on, and gives you the option of keeping it on through the event, dissolving it off during the event, or fading both foreground and background off. In this case, you'll keep it up through the entire event.

By looking at your rough cut (which of course, will not include the foreground key signal unless your off-line system has a keyer installed), you find that the in and out points on reel number 2 are 02:51:18:12 and 02:51:20:26 respectively. Enter those numbers for the C-VTR.

The dialogue for setting up the key will be a bit different this time. First, when you press F6 and the system asks "KEY, OK?", press "N" to change it to a key out, and then press ENTER. The background is still the C-VTR, and

the foreground is still AUX. The system won't ask for a delay, however, since that would run counter to the purpose of a key out. Instead, it will ask a question you didn't get when you set up the last key, since in that case, you did enter a delay. Let's pick up the dialogue at this point:

```
KEY OUT, OK?    BACKGROUND: B  FOREGROUND: X
               FADE IS OFF, OK?
```

The system wants to know if you'd like to have the foreground and background fade to black together, using the on-line system switcher's downstream master fade to black hardware. Like the KEY / KEY OUT queries, the fade function is toggled on and off by pressing "N". In this case, the default setting is correct, that is, you don't want to fade to black, and therefore want the fade function off. Press ENTER to accept the setting.

The system will now ask for the dissolve duration, as it did when you set up the last key. Since the key will stay up through the entire event, you'll enter a duration of zero. You must type "0" (zero) and then press ENTER to enter a value of zero. If you simply press ENTER, the system will abort the key dialogue.

Again, no in or out points are necessary for the AUX channel, so the event is ready to be recorded. The display should appear as follows:

```
                    4651-034  "EDIT LISTER"  1 X :30
  V/A2        ─────────── IN ─────────── OUT ───────DURATION───────
              RECORD    01:00:23:24    01:00:23:24              (N)
                                                     30:00
              A-0001    01:35:04:16    01:35:04:16              (N)
  KEY OUT     B-0001B   01:13:11:10    01:13:11:10              (N)
  X OVR C  0  C-0002    02:51:18:12    02:51:20:26    2:14      (N)
              D-0099    01:19:28:22    01:19:58:22    30:00     (N)
              AUX
  SORT REC-IN BLACK                                   CO=  00:00:00:00
  EVENT * 011

  SPLIT: VIDEO DELAY= 00:00:01:10
  009  002  A2    C           02:17:20:12  02:17:24:06  01:00:15:18  01:00:19:12
  009  002  V     C           02:17:21:22  02:17:24:06  01:00:16:28  01:00:19:12
  010  002  A2/V  C           02:46:12:24  02:46:13:24  01:00:19:12  01:00:20:12
  010  002  A2/V  K B         02:46:13:24  02:46:17:06  01:00:20:12  01:00:23:24
  010  AX   A2/V  K     015  00:00:00:00  00:00:00:00  01:00:20:12  01:00:20:12
```

After you've recorded the event, the display should appear as shown at the top of the next page.

```
                    4651-034  "EDIT LISTER"   1 X :30
 V/A2         ┌──────────── IN ─────── OUT ──────DURATION───────────────
              │ RECORD    01:00:26:08  01:00:26:08
              │                                          (N)
              │                                    30:00
              │ A-0001    01:35:04:16  01:35:04:16       (N)
 CUT - C      │ B-0001B   01:13:11:10  01:13:11:10       (N)
              │ C-0002    02:51:20:26  02:51:20:26       (N)
              │ D-0099    01:19:28:22  01:19:58:22  30:00 (N)
              │ AUX
 SORT REC-IN  │ BLACK
 EVENT # 012  │                                    CO=  00:00:00:00
              └────────────────────────────────────────────────────────

   010   002   A2/V   C              02:46:12:24  02:46:13:24  01:00:19:12  01:00:20:12
   010   002   A2/V   K B            02:46:13:24  02:46:17:06  01:00:20:12  01:00:23:24
   010   AX    A2/V   K      015     00:00:00:00  00:00:00:00  01:00:20:12  01:00:20:12
   011   002   A2/V   K B            02:51:18:12  02:51:20:26  01:00:23:24  01:00:26:08
   011   AX    A2/V   K O    000     00:00:00:00  00:00:00:00  01:00:23:24  01:00:23:24
```

Notice that without a delay, the key takes up only two lines in the list, and that they resemble the last two lines of event number 10. The "B" next to the "K" on the first line of event number 11 indicates the background, and define the in and out points for both the background and the record tape.

On the second line, the "O" next to the "K" indicates that the event is a key out, while the "000" in the duration column shows that there was no dissolve rate established for the foreground dissolve on. The fact that there is no duration for either source or record on the second line again shows that the foreground key stays on through the entire event.

You're now ready to record the last event in the spot—another key out to extend the title, but this time with the fade function on, to fade the entire screen to black.

Follow the key out setup procedures, but this time, set the fade function to on by pressing "N" when it asks you about whether or not to fade, and enter a duration of 20 frames.

Your source in and out points on reel number 2 are 02:27:59:06 and 02:28:02:28, respectively, so enter those for the C-VTR.

For this final event, it will be necessary to establish a duration for the foreground signal coming from AUX, and it must be done in a particular and precise manner. Essentially, the foreground duration must be equal to the background duration, minus the dissolve duration, as mentioned on page 3-27.

You could accomplish this in one of two ways:

1. A glance at the active event display will show that the duration for the C-VTR is 3:22. The dissolve duration being 20 frames, you could simply establish a duration for the AUX source of 3:02, since the subtraction is easy to do mentally. (Select AUX by pressing "X", press CTRL-D, type "3:02" or "302:", and press ENTER.)

2. You could transfer the C-VTR duration down to the AUX channel, and then trim it by -20 frames. (Press "X", then CTRL-D, then "C", then CTRL-D, then ENTER, then F4, then type "-20", and press ENTER.)

Of the two procedures, the second loses the keystroke comparison test, 11 to 7, but it wins in convenience because it requires no mental math on your part. (The example—3:22 minus 20 frames—was an easy one, but quick—what's 8:11 minus 17 frames?)

Set up the key out, this time with fade on and a 20-frame duration, and the display should appear as follows:

```
                    4651-034   "EDIT LISTER"   I  X :30
    V/R2          ┌────────────── IN ──────────── OUT ────────DURATION──────────────┐
                  │  RECORD    01:00:26:08   01:00:26:08               (N)           │
                  │                                            30:00                 │
                  │  A-0001    01:35:04:16   01:35:04:16               (N)           │
    KEY OUT (F)   │  B-0001B   01:13:11:10   01:13:11:10               (N)           │
    X OUR C  20   │  C-0002    02:27:59:06   02:28:02:28     3:22      (N)           │
                  │  D-0099    01:19:28:22   01:19:58:22    30:00      (N)           │
                  │  AUX       00:00:00:00   00:00:03:02     3:02                    │
    SORT REC-IN   │  BLACK                                            CO=  00:00:00:00│
    EVENT * 012   └──────────────────────────────────────────────────────────────────┘

    010  002  R2/V  C          02:46:12:24  02:46:13:24  01:00:19:12  01:00:20:12
    010  002  R2/V  K B        02:46:13:24  02:46:17:06  01:00:20:12  01:00:23:24
    010  RX   R2/V  K     015  00:00:00:00  00:00:00:00  01:00:20:12  01:00:20:12
    011  002  R2/V  K B        02:51:18:12  02:51:20:26  01:00:23:24  01:00:26:08
    011  RX   R2/V  K 0   000  00:00:00:00  00:00:00:00  01:00:23:24  01:00:23:24
```

Notice the "(F)" next to "KEY OUT" in the active event area, and the fact that when you established an out point for the AUX channel, the system automatically used 00:00:00:00 as the in point.

Auxiliary sources, which includes the AUX and BLACK channels, do not use time code, and thus when the need arises to establish a duration for them, the system automatically uses zero time code. There is nothing to prevent you

from entering in and out points, if you have some reason for doing so—it's the duration that's the important information.

The last event is now ready to record, after which the display will appear as follows:

```
                      4651-034  "EDIT LISTER"  1 X :30
  U/R2                ──────── IN ───────── OUT ────────DURATION────
                   RECORD    01:00:30:00.  01:00:30:00              (N)
                                                          30:00
                   A-0001    01:35:04:16   01:35:04:16              (N)
  CUT - C          B-0001B   01:13:11:10   01:13:11:10              (N)
                   C-0002    02:28:02:28   02:28:02:28              (N)
                   D-0099    01:19:28:22   01:19:58:22    30:00     (N)
                   AUX
  SORT REC-IN      BLACK                                    CO=   00:00:00:00
  EVENT * 013

    011   002   A2/U   K B          02:51:18:12  02:51:20:26  01:00:23:24  01:00:26:08
    011   AX    A2/U   K O    000   00:00:00:00  00:00:00:00  01:00:23:24  01:00:23:24
    012   002   A2/U   K B    (F)   02:27:59:06  02:28:02:28  01:00:26:08  01:00:30:00
    012   AX    A2/U   K O    020   00:00:00:00  00:00:03:02  01:00:26:08  01:00:29:10
```

Notice the "(F)" in the first line of event number 12 that indicates that the fade function is on. In a key, the system resets the selected source according to the background of the last recorded event, as with a cut. Your system should therefore now be showing "CUT - C" in the active event area, with the asterisk showing B as the selected channel.

The record in point updated to the old out point, and the fact that it shows 01:00:30:00 tells us we came out right on the money for our 30-second spot.

One final step remains, and that is the clean-up of event 7. As you'll recall, event 7 was over-recorded, and you corrected by ten frames when you recorded event number 8, but you've not yet cleaned event number 7.

In a real-life situation, you'd simply run the list through one of Soft Scrub's Auto Clean modules, which would clean the over-record at the end of event 7, but for purposes of demonstrating the principle, let's do the cleaning manually.

List Management—The Re-Edit Mode

Any event in the system's memory can be called back in what is known as the "re-edit" mode, whereupon it can be modified in any way and inserted back into the list. If the record out point of the event is changed, either by moving the event on the record tape or by changing the event duration, the system will offer to "ripple" the list. Thus, if you shorten an event, the system will offer to adjust the record in point of any event with a later starting point, in order to fill in the "hole" left in the list when the event was shortened.

Most experienced editors know that perhaps 80 percent of the time, the correct answer to the "RIPPLE LIST, OK?" question is a resounding "NO!", and our example will be one of those cases.

To re-edit event number 7, press "4", and the system will ask:

```
RE-EDIT NO:            (ENTER SELECTS HIGHLIGHTED EVENT)
```

Type "7" (you could also use the UP ARROW key to select event number 7, but doing so would take much more time), and press ENTER. Quite a few things will then happen, all in an instant:

The edit points currently shown in the active event area are first stored in a buffer, so that they can be recalled when you insert event number 7 back into the list (or if you were to close the re-edit without making changes).

Event number 7 is recalled from memory, and is displayed in the active event area. At the lower left corner of the active event area, the system will show "RE-ED # 007".

The system will display the portion of the list surrounding the event that has been recalled, starting one event before the one opened in re-edit mode. In this case, the system will start the list display at event number 6, as shown at the top of the next page.

```
                    4651-034   "EDIT LISTER"   1 X :30
  V/A2  ┌─────────────── IN ───────────── OUT ──────── DURATION ────────────┐
        │  RECORD     01:00:09:16                               (N)          │
        │                                           30:00                    │
        │  A-0001     01:35:01:18    01:35:01:18                (N)          │
  WIPE . 2 │ B-0001B   01:13:11:10    01:13:11:10                (N)          │
  A TO C  20 │ C-0002   02:13:14:28    02:13:17:26      2:28       (N)        │
        │  D-0099     01:19:28:22    01:19:58:22      30:00      (N)          │
        │  AUX .                                                              │
  SORT REC-IN │ BLACK                                            CO=   00:00:00:00 │
  RE-ED * 007 └─────────────────────────────────────────────────────────────┘

     006   001B  A2/V   C               01:13:11:10   01:13:11:10   01:00:06:18   01:00:06:18
     006   001   A2/V   D       015     01:34:58:20   01:35:01:18   01:00:06:18   01:00:09:16
     007   001   A2/V   C               01:35:01:18   01:35:01:18   01:00:09:16   01:00:09:16
     007   002   A2/V   W002    020     02:13:14:28   02:13:17:26   01:00:09:16   01:00:12:14
     008   002   A2/V   C               02:35:04:06 · 02:35:09:00   01:00:12:04   01:00:16:28
     SPLIT: VIDEO DELAY= 00:00:01:10
     009   002   A2     C               02:17:20:12   02:17:24:06   01:00:15:18   01:00:19:12
     009   002   V      C               02:17:21:22   02:17:24:06   01:00:16:28   01:00:19:12
```

In the re-edit mode, you have the opportunity to make any sort of changes you
might wish, including edit mode, type, durations, and alterations to any and
all edit points.

In this case, all we want to do is trim the C-VTR out point by –10 frames, so
press F4, type "–10", and press ENTER. (The C-VTR was selected by the
system because it was the "to" source; the system assumed you wanted to
make changes there.)

If you decided for some reason to cancel your correction, and leave the list as
it was, you would close the re-edit mode by pressing "6".

In this case, you do want to make the change, so you'll insert the event back
into the list by pressing "5". The system will then ask:

        RIPPLE LIST, OK?

In this case, you definitely do not want to pull up the list. To do so would
change all record in points higher than event number 7, and that would be
wrong. Press "N", and the system will insert the event without rippling the
list.

The system will then re-display the list, starting again with event number 6.
You won't see anything happen until it gets to event number 7, or after it's
displayed number 7, however, because all of the other events are the same as

they were before. If you keep your eye on the source and record out times for event number 7, however, you'll see those numbers change.

When the list display is finished, the record out point for event number 7 should now match the record in point for event number 8, indicating that the over-record has been cleaned up.

Saving the List

You've just spent a fair amount of time building an edit decision list, and this leads to what should automatically be the next thing you do: save the list to disk. If there should be a power failure, if someone tripped over your computer's power cord, or if, in a fit of forgetfulness, you were so pleased with your work that you momentarily lost your head and turned off the computer, all the results of your labors would go bye-bye.

So it's a good habit to immediately save the list to disk. For that matter, it's not a bad idea to save the list every once in a while as you work, just to protect against these types of calamities.

To save the list, press "9", which will get you the disk menu:

```
DISK:   S = SAVE LIST     L = LOAD LIST     D = DELETE LIST
```

Next press "S", and the system will ask:

```
FILE TYPE:     E - EDIT LISTER      A - ASCII TEXT
```

Press "E" to save the list as an Edit Lister format file. The system will then ask:

```
Please enter a name under which this file will be saved on disk.
```

Type in a name of up to eight characters by which the system will save the file on disk. In this case, type in the name "LISTSAMP", and press ENTER.

The system will save the list, and then return control to you. Your list is now safe and sound on disk.

Now comes the final test of how you did. What you'll do is print out your list, and then load the sample list supplied on the Sample Files disk, print it out, and compare the two.

Printing the List

To print the list, press "*" (shift/8). The system will ask:

    1 - COMPLETE LIST   2 - PART OF LIST

Make sure your printer is turned on, selected and that it's loaded with paper, and then press "1" to print the entire list. The printer will spring into action. The list will be printed, at the end of which the system will issue a form feed command to advance the paper to the top of the next sheet.

If you have an optional 8-inch disk drive or paper tape punch unit connected to your system, you may also want to save the list on disk or paper tape at this time, following the directions in the appropriate Appendix.

Comparing Lists

To see how your list compares with the one that came with your software package, press "9", then "L" and "E". The system will display the directory listing of the files disk. If you have copied the Sample Edit Files onto your files disk, there should now be a number of files on the disk: the one named "SAMPLE1" is our version of this list, while the one named "LISTSAMP" is your version. As the prompt says, use the cursor keys to select SAMPLE1 and press ENTER. The system will load the list, and then return to the edit display.

Print out our list, and then compare the two lists. Except for the notes in the list and the title, which may be different for your list, the two should be identical. Our list is reproduced in full on the next page.

```
DISK FILE NAME:  SAMPLE1
TITLE: 4651-034  "EDIT LISTER"  1 X :30
FCM: NON-DROP FRAME


001    AX   AA/V   C              00:00:00:00  00:01:00:00  00:58:30:00  00:59:30:00
COLORBARS AND TONE


002    AX   AA/V   C              00:00:00:00  00:00:20:00  00:59:30:00  00:59:50:00
SLATE


003    099   A     C              01:19:28:22  01:19:58:22  01:00:00:00  01:00:30:00
PRE-EDITED VOICE-OVER


004    BL    A2/V  C              00:00:00:00  00:00:00:00  01:00:00:00  01:00:00:00
004    001   A2/V  D        020   01:08:24:14  01:08:28:08  01:00:00:00  01:00:03:24
(AUDIO 2 IS NAT. SOUND)


005    001   A2/V  C              01:08:28:08  01:08:28:08  01:00:03:24  01:00:03:24
005    001B  A2/V  D        015   01:13:08:16  01:13:11:10  01:00:03:24  01:00:06:18


006    001B  A2/V  C              01:13:11:10  01:13:11:10  01:00:06:18  01:00:06:18
006    001   A2/V  D        015   01:34:58:20  01:35:01:18  01:00:06:18  01:00:09:16


007    001   A2/V  C              01:35:01:18  01:35:01:18  01:00:09:16  01:00:09:16
007    002   A2/V  W002     020   02:13:14:28  02:13:17:16  01:00:09:16  01:00:12:04


008    002   A2/V  C              02:35:04:06  02:35:09:00  01:00:12:04  01:00:16:28


SPLIT: VIDEO DELAY= 00:00:01:10
009    002   A2    C              02:17:20:12  02:17:24:06  01:00:15:18  01:00:19:12
009    002   V     C              02:17:21:22  02:17:24:06  01:00:16:28  01:00:19:12


010    002   A2/V  C              02:46:12:24  02:46:13:24  01:00:19:12  01:00:20:12
010    002   A2/V  K B            02:46:13:24  02:46:17:06  01:00:20:12  01:00:23:24
010    AX    A2/V  K        015   00:00:00:00  00:00:00:00  01:00:20:12  01:00:20:12
BRING UP TITLE KEY (B & W TITLE CAMERA) - USE ARTWORK PROVIDED BY CLIENT
(KEY CONTINUES TO LAST EVENT)


011    002   A2/V  K B            02:51:18:12  02:51:20:26  01:00:23:24  01:00:26:08
011    AX    A2/V  K O      000   00:00:00:00  00:00:00:00  01:00:23:24  01:00:23:24
(KEY EXTENDED)


012    002   A2/V  K B    (F)     02:27:59:06  02:28:02:28  01:00:26:08  01:00:30:00
012    AX    A2/V  K O      020   00:00:00:00  00:00:03:02  01:00:26:08  01:00:29:10


REEL SUMMARY:

099    001    001B    002
```

Edit Lister automatically adds the disk file name, show title, and frame code mode notations at the top of the list, and a summary of the reels used in the list at the bottom of the list.

In Summary...

You've now gone through an example of a simple edit session that includes each of the major types of edits. The session included an error that you later went back and corrected. With practice, the various procedures will become second nature to you. You'll eventually be fully up to speed on Edit Lister.

Beyond that, however, you'll also be perhaps 80% up to speed on CMX-style high level editing systems. The major difference between Edit Lister and these systems in terms of their operation is the keyboard. Since those systems use dedicated keyboards with keys that are labeled with their function, you'll find it very easy to make the transition from Edit Lister.

We recommend that you practice with the system—especially the list management functions. For instance, use the sample list to experiment with the options on list rippling. As an example, open an event, shorten it, and then insert it into the list. Tell the system to ripple, and then watch the record in time codes to see what happens. Then re-open the same event, take it back to its original length, and re-insert it, pulling the list up again.

If you have the optional 8-inch disk drive or paper punch, you should save the list in that form, and then re-load it back into the system. Print it out and compare the printout to the listing included above, as a way of checking the operation of the drive or punch unit.

If you have gone through this section first as an introduction to Edit Lister, you're now ready to go read the operating instructions in the first section of this manual.

Good luck, and may all your edits be clean!

APPENDIX A

THE HELP SCREENS

The Help screens may be displayed from the main list management section by typing "?" or "/". The first press of the key will display the first page of the Help screens; the second press of the key will display the second page of the Help screens. Pressing the key a third time will clear the second Help screen and re-display the list, if any.

The two pages of the Help screens are reproduced below:

```
CHANNELS:    EDIT TYPES:    EDIT MODES:            Help Page One
  R = R-VTR    F5 = Cut       0 = Video On/Off
  A = A-VTR    F7 = Dissolve  - = Audio 1 On/Off   EDIT POINTS:
  B = B-VTR    F8 = Wipe      = = Audio 2 On/Off    F1 OR I = Set In
  C = C-VTR    F6 = Key       + = Audio 3 On/Off    F2 OR O = Set Out
  D = D-VTR    Alt-S = Still  S = Split A/V          F3 = Trim In
  X = AUX                                            F4 = Trim Out
  L = BLACK    LIST MANAGEMENT:    # = Renumber List CTRL-D = Duration
               4 = Open Re-Edit    % = Move Event(s) CTRL-C = Constants
DROP/NON:      5 = Insert Event    ^ = Record Start
  F = Toggle   6 = Close Re-Edit  DEL = Delete Ev(s) Press "?" for more.
```

```
DISPLAY:           INPUT/OUTPUT:      MISC:             Help Page Two
  HOME = Top of List  CTRL-E = E-Link    1 = Chg. Reels
  END = End of List   * = Print List     ! = Chg. Event # AUTOCONVERT:
  ↑ = Up One Event    ( = Tape In/Out    @ = Sort Modes    F9 = Diss.
  ↓ = Down One Event  9 = Disk In/Out    2 = Title         F10 = Wipe
  PGUP = Up One Scrn                     7 = Notes
  PGDN = Down 1 Scrn  MARKS:             P = Prog. Start   CTRL-R = TCRdr
  CTRL-F = Full Scrn   3 = Recall Marks  CTRL-S = S.Scrub  CTRL-X = Exit
  8 = Display Commnd   $ = Last Marks    CTRL-A = Animate  ALT-D = DOS
  ALT-F = Find Note    N = Mark In       CTRL-T = Tag Ev.
  & = Reset Display    M = Mark Out      CTRL-I = Install  "?" for list.
```

The ALT-N command, used to find subsequent occurrences of a note after an ALT-F "find note" command, is not listed.

The ALT-T command to display the time constant determined by Edit Lister (used to adjust for the computer's clock speed) is also not listed.